PHYSIOTHERAPY MANUAL

Village-Based Early Intervention Programme

Enabling Inclusion

Developed by:
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AMAR SEVA SANGAM

Amar Seva Sangam (ASSA) is a premier organisation in the field of disability management focusing on rural areas, located in Ayikudy Village in Tenkasi District of Tamil Nadu. Our approach is to establish a centralised resource center to act as a catalyst for change in the development of children and adults who are differently abled and intellectually challenged. We do this by involving the village community in the process. This mission of ASSA is to establish a Valley for the Disabled, whereby persons with physical / intellectual challenges live in a pro-active society where equality prevails irrespective of physical, intellectual or other challenges with the rest of the society. It is a futuristic vision whereby Amar Seva Sangam plays the role of an enabling agent to provide persons with physical / intellectual challenges "equality of status, equality in opportunities and equality in access".

Amar Seva Sangam (ASSA) was established by Mr. Ramakrishnan, in the International year of the Disabled to cater to disability management focusing on rural areas.

S. Ramakrishnan, Founder President

S. Ramakrishnan, while in his 4th year engineering, injured his spine while attending the last round of Naval officers' selection test and became a quadriplegic. He established ASSA in 1981, the year for the Disabled and named it after his Doctor and mentor Air Marshal Dr. Amarjit Singh Chahal of Defence hospital. **Padma Shree awardee** S.Ramakrishnan is the President of ASSA.

S. Sankara Raman, Secretary

S. Sankara Raman, a Chartered Accountant and a wheel chair user, affected by muscular dystrophy joined ASSA in 1992. He is the Secretary of ASSA. Along with Mr. Ramakrishnan, they have built a **Valley for the Differently Abled** in a 30 acre land at Ayikudy, as a Rehabilitation and Development Centre and developing models for self-help initiatives by integrating individuals with disabilities within society for improved living conditions.

In 2020, he established Amar Seva Global, a social enterprise focused on spreading Amar Seva's Enabling Inclusion program globally.

What is Development Delay ?

Skills such as taking a first step, smiling for the first time, and waving "bye-bye" are called developmental milestones. Children reach milestones in how they play, learn, speak, behave, and move (for example, crawling and walking). Children develop at their own pace. However, when developmental milestones are not met by a certain expected age, it is called "developmental delay". Early stimulation and intervention can help children reach these milestones.

What is Development Disability?

Developmental disabilities are a group of conditions due to an impairment in physical, learning, language, social or behavioral areas. These conditions begin during a child's developmental period, may impact day-to-day functioning, and can last throughout a person's lifetime. According to the WHO, "If children with developmental delays are not provided with appropriate early intervention, their difficulties can lead to lifetime consequences, increased poverty and profound exclusion".

What is Early Intervention?

Interventions promoting child development should address physical, social, emotional, language, and cognitive areas of development. Services targeting these domains of development are termed, "Early Intervention therapy" and can encompass physical therapy, occupational therapy, speech-language therapy and special education. Early Intervention has a significant impact for children who have delayed development in physical, cognitive, emotional, sensory, behavioural, social and communication domains of development. With quality early intervention services, children can reach their potential, live a meaningful life and integrate into their communities.

Enabling Inclusion Programme

Amar Seva Sangam's Enabling Inclusion programme uses community rehabilitation workers to provide early intervention services to children in their own homes or in community centres by connecting these community workers with rehabilitation specialists (physiotherapists, occupational therapists, speech therapists/trainers and special educators) through the use of the award winning Enabling Inclusion (EI) app. The program has proven to improve outcomes for children with disabilities and their family members and has allowed many children to reach their potential.

TABLE OF CONTENTS

CHAPTER 1
WORKING WITH CHILDREN WITH DISABILITIES IN CBR SETTINGS…….p. 7—16

The Evolution of the Disability Models: Medical to Social to Right-Based Model
The WHO's ICF: The International Classification of Functioning, Disability and Health
The “F-words in Childhood Disability”

CHAPTER 2
UNDERSTANDING CHILD DEVELOPMENT……p.17—39

Early Childhood Development
Gross Motor and Fine motor Development
Play and Motor Development
Sensory Integration/Processing
Socio-Emotional Development

CHAPTER 3
CEREBRAL PALSY……p.40—53

Patterns of CP and Impairments of Cerebral Palsy
Types of CP, classifications
The GMFCS- Gross Motor Function Classification System
Motor development curves for GMFCS level

CHAPTER 4
ASSESSMENT OF THE CHILD WITH MOTOR IMPAIRMENT……p.54—67

Specific Physiotherapy Assessment
Range of Motion Assessment in Cerebral Palsy
The GMFM: The Gross Motor Function Measure:
The WeeFIM: The Functional Independence Measure

CHAPTER 5
PHYSIOTHERAPY APPROACHES FOR CHILDREN
WITH DEVELOPMENTAL DISABILITIES……...p.68—77

Planning Interventions for Children with Developmental Disabilities
Family-Centred Goal Setting: The COPM
Maintaining/improving Muscle Length in Cerebral Palsy
Guidelines for Exercise: range of motion, stretching and strengthening

CHAPTER 6
THERAPEUTIC INTERVENTIONS FOR GROSS MOTOR DEVELOPMENT……p.78—116

Supine and Prone:
Developing head and anti-gravity control in supine and prone
Tummy Time Strategies
Rolling

Sitting:
Training sitting balance and facilitating transitions in/out of sitting

Four-Point, Crawling and Kneeling
Training 4-point kneeling, crawling, and kneeling

Standing with Support:
Training standing with support
Transitions in/out of standing

Independent Standing and Walking:
Training independent standing balance
Training side-stepping (cruising) and walking with/without environmental support

Advanced Skills in Standing
Training balance and coordination (GMFCS Levels I and II)

Upper Extremity and Fine Motor Skills Intervention

CHAPTER 7
CEREBRAL PALSY AND MOTOR IMPAIRMENTS……p.118—124
ICF-Based Goals and Interventions (EI App)

CHAPTER 8
INTERVENTION IN OTHER COMMON PEDIATRIC CONDITIONS…….p.125—136

Clubfeet (CTEV)
Erb's Palsy
Muscular Dystrophy
Spina Bifida
Spinal Deformity
Torticollis
Visual Impairment and Cortical Visual Impairment

CHAPTER 9
HANDLING AND POSITIONING THE CHILD WITH MOTOR IMPAIRMENTS…..p.137—147

Carrying the child with Motor Impairments
Optimal Handling and positioning the child in lying, sitting, standing
Positioning for Children GMFCS Levels IV-V

CHAPTER 10
ENVIRONMENTAL FACTORS:
ENABLING FUNCTION, INCLUSION AND PARTICIPATION……..p.148—151

Identifying environmental barriers and setting environmental goals
Environmental Interventions to enable function

CHAPTER 11
MOBILITY AND SUPPORTIVE DEVICES…….p.152—157

Assistive Technology for Children with Disabilities
Supportive Seating and Wheelchair Provision
Walking Aids, Mobility Devices

APPENDIX……..p. 158—161
Additional Pediatric Resources- Websites, videos, books

***Early Childhood Intervention*:** Early childhood intervention (ECI) programmes are designed to support young children who are at risk of developmental delay, or young children who have been identified as having developmental delays or disabilities. ECI comprises a range of services and supports to ensure and enhance children's personal development and resilience *(23)*, strengthen family competencies, and promote the social inclusion of families and children *(24)*. Examples include specialized services such as: medical; rehabilitation (e.g. therapy and assistive devices); family-focused support (e.g. training and counselling); social and psychological; special education, along with service planning and coordination; and assistance and support to access mainstream services such as preschool and child-care (e.g. referral). Services can be delivered through a variety of settings including health-care clinics, hospitals, early intervention centres, rehabilitation centres, community centres, homes and schools.

Reference- Early Childhood Development and Disability: A Discussion Paper- WHO/ UNICEF, 201

CHAPTER 1

Working with Children with Disabilities in CBR settings

1. The Evolution of the Disability Models: Medical to Social to Right-Based Model
2. The WHO's ICF: The International Classification of Functioning, Disability and Health
3. The “F-words in Childhood Disability”:
   Function, Family, Fitness, Fun, Friends, Future.

The ICF for Parents

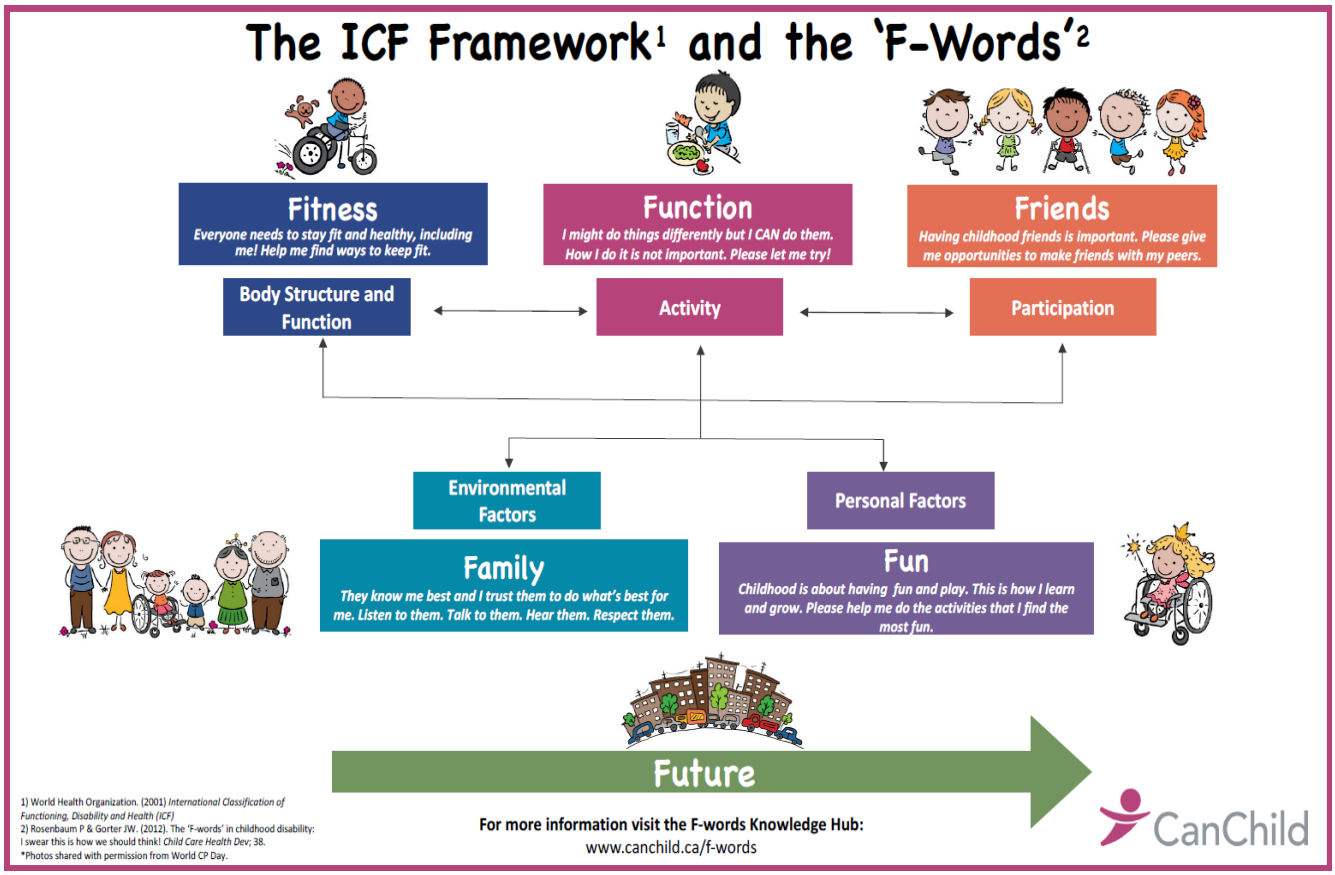
https://canchild.ca/en/the-icf-for-parents-p-icf

The F-Words Knowledge Hub

https://www.canchild.ca/en/research-in-practice/f-words-in-childhood-disability

Check out “My Favourite Words” from CP-NET on Vimeo.

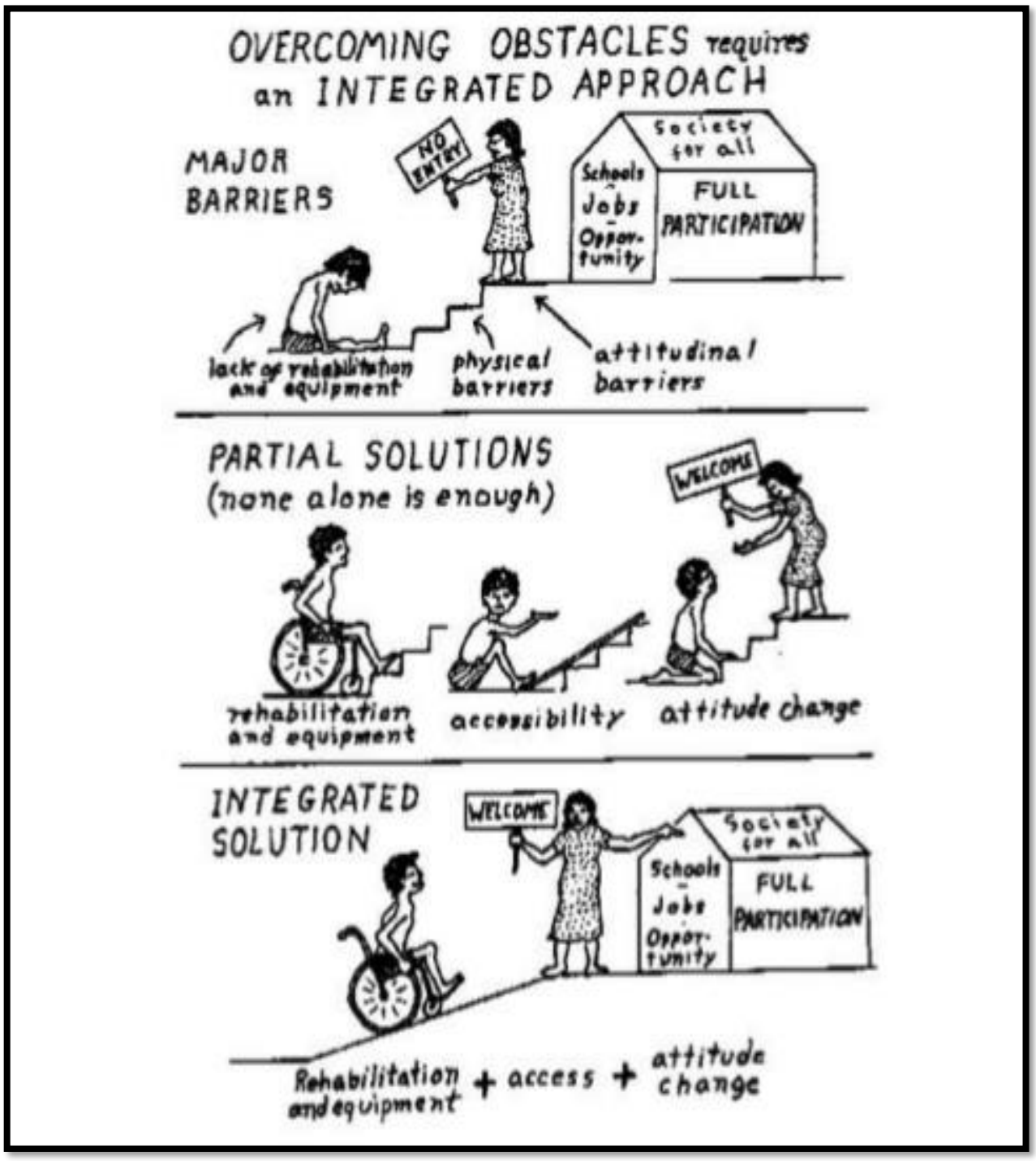
https://vimeo.com/252166407

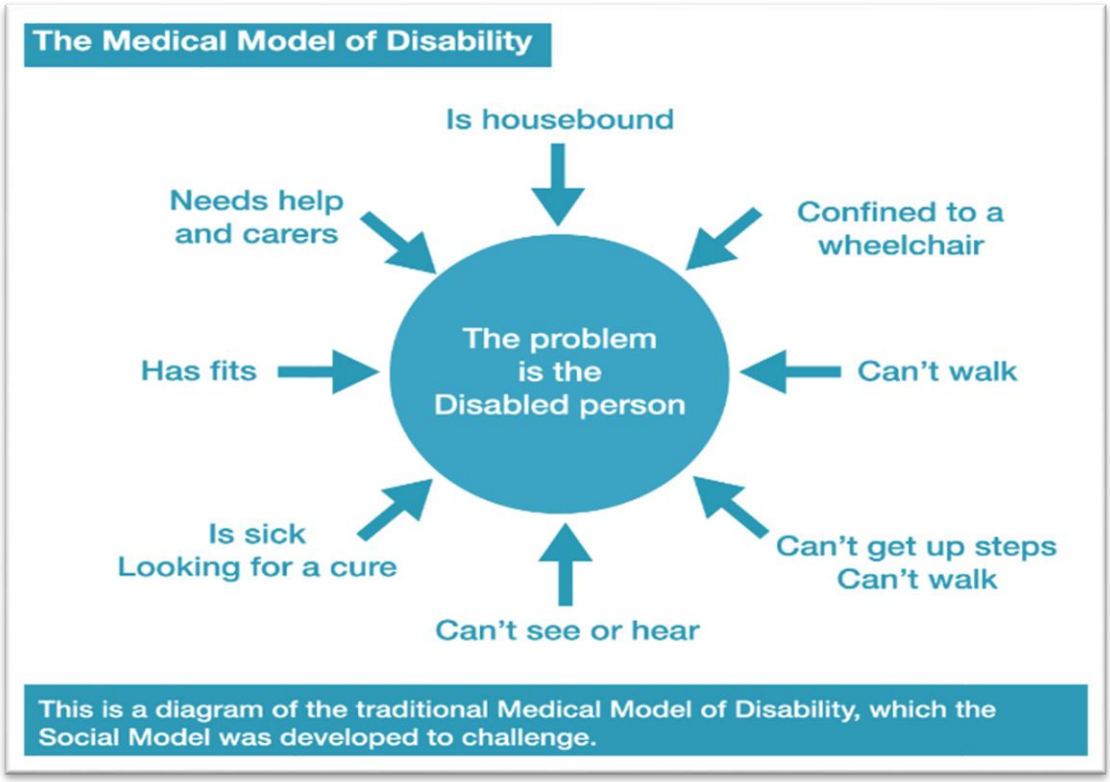


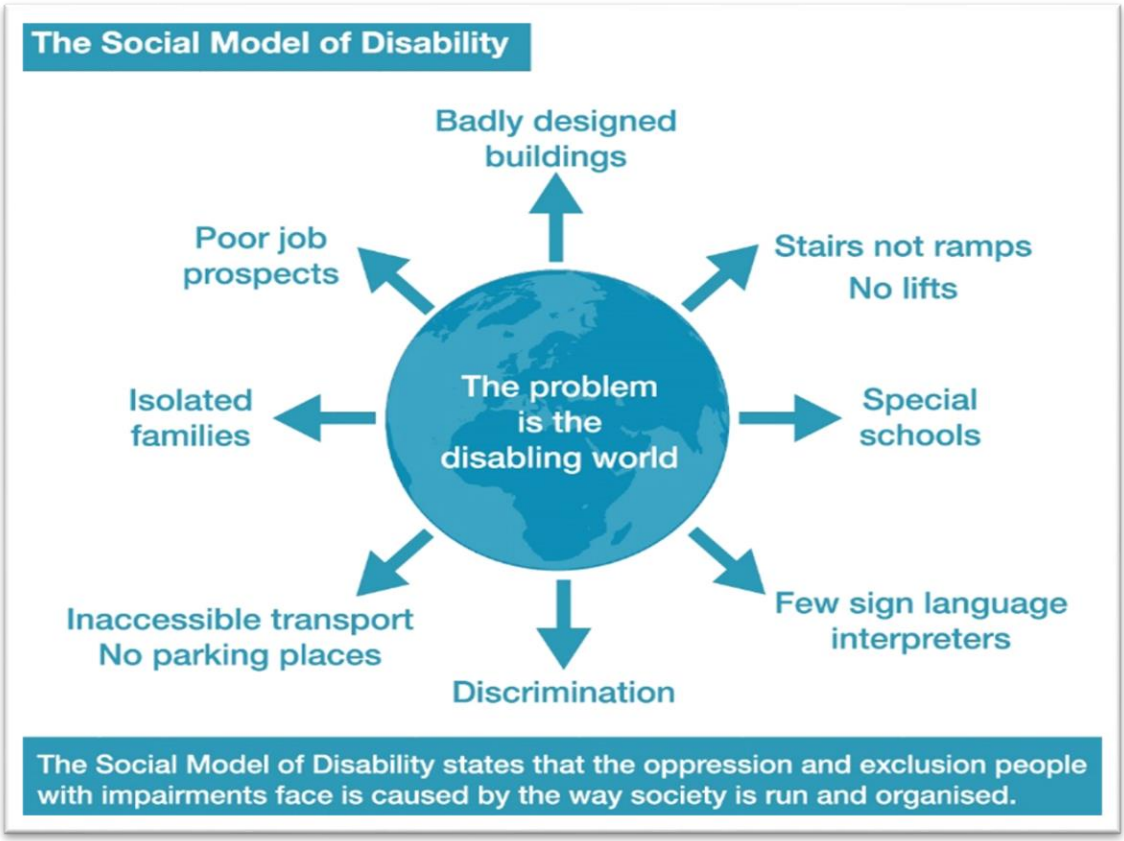
1. The Evolution of the Disability Models: Medical to Social to Right-Based Model

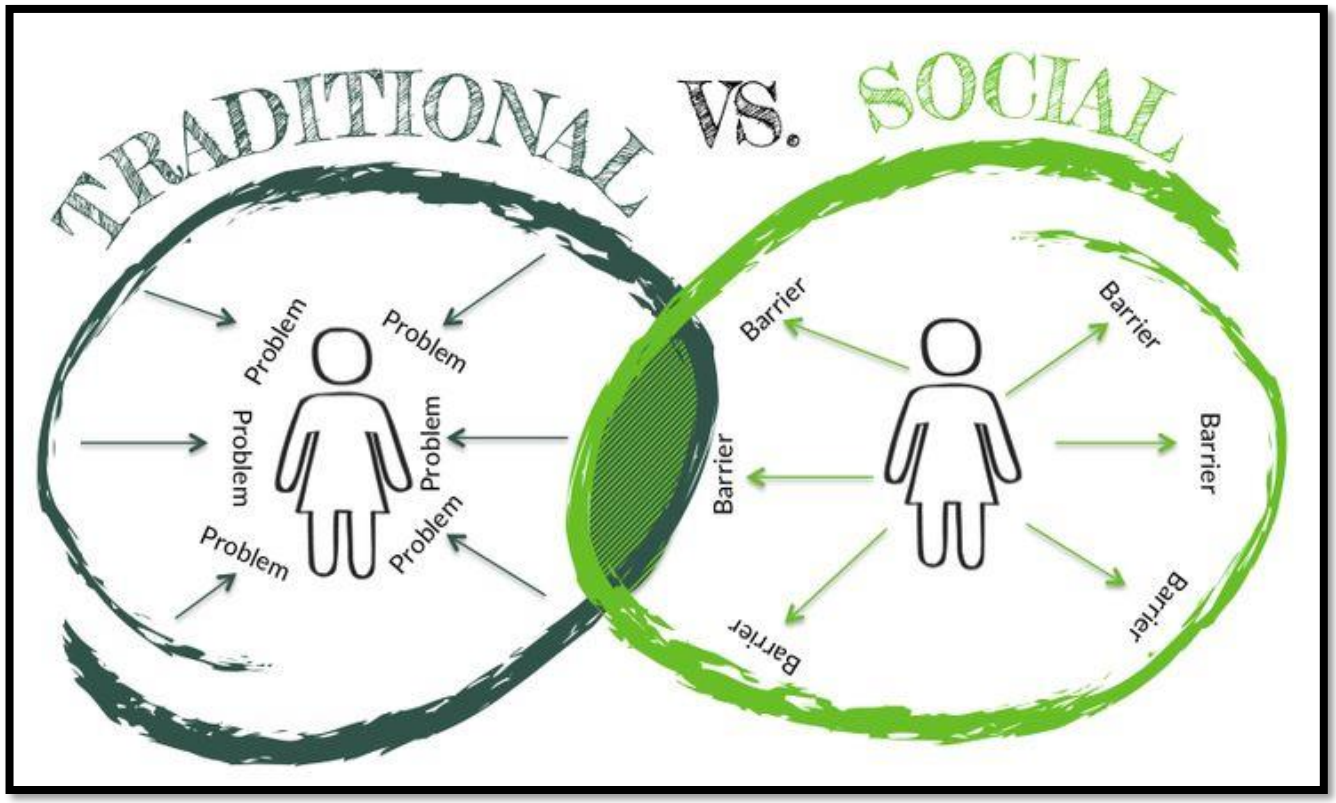
Main Disability Models

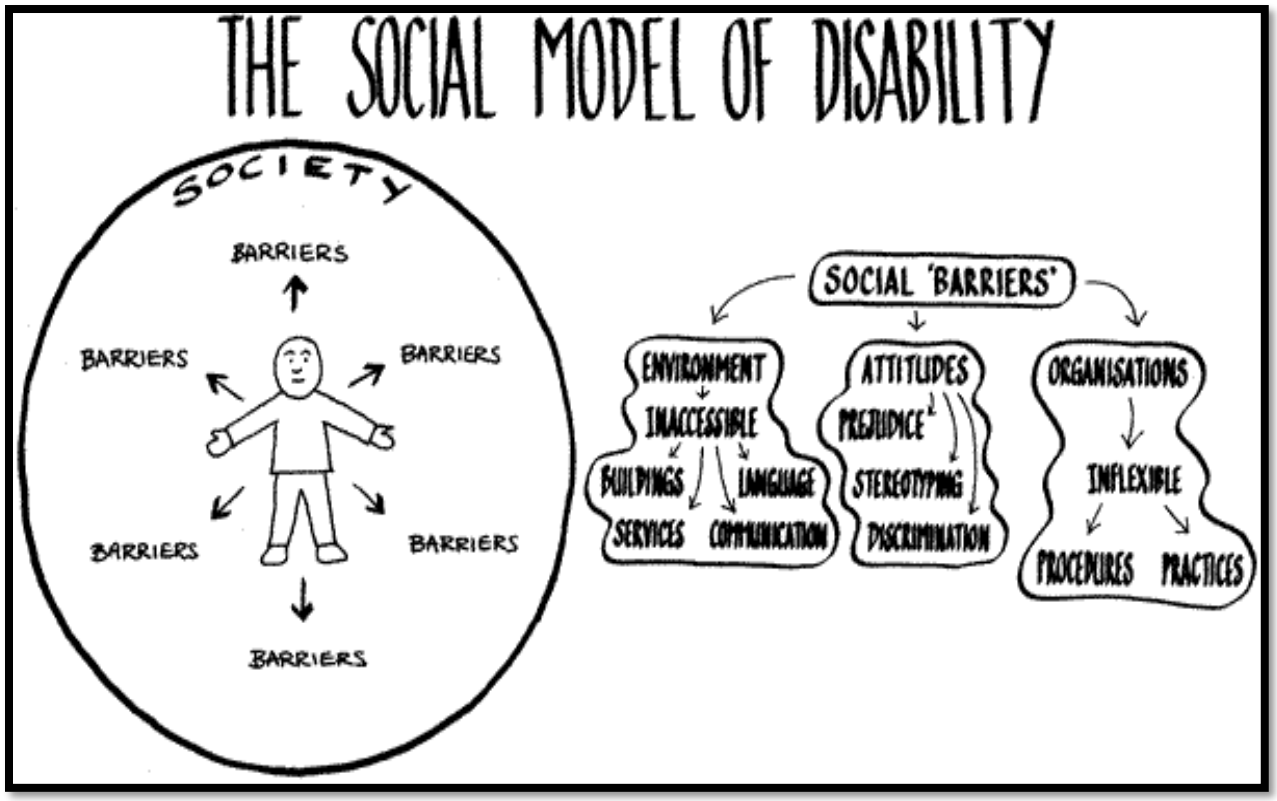
Model	Charity Model	Medical Model	Social Model	Human Rights Model
Appearance	Early 20th century	Mid-20th century	Late 20th century	Late 20th-start 21st century
Description	PWDs seen as victims at the grace of society's charity. PWDs viewed as suffering people to be pitied and cared for. Whatever is done for PWDs is done out of charity.	Disability seen as problem of the individual, directly caused by disease, trauma or other health condition. Medical care of the impairment is required. Management of the disability is aimed at cure or the individual's adjustment and behaviour change.	Disability seen as the result of the limitations imposed by environmental barriers. The problem is placed on discrimination and exclusion coming from the society. The response is to remove barriers.	Model derived from the social model and based on the principle that all people must have equal opportunities to participate in society. Main goal is to empower PWDs and to guarantee their right to equal and active participation in political, economic, social, and cultural activities. Access to services and participation is seen as a right and not an act of charity.
Possible response to following problem: A farmer has lost one leg during an earthquake. He is now begging in the street.	Donate some food or money	Physical rehabilitation: fit a prosthesis and train the person on how to utilize and maintain it.	In addition to physical rehabilitation, adjust the environment to facilitate the person's participation: • universal design in reconstruction activities; • awareness campaigns aiming to reduce discrimination.	Empowerment: in addition to adjusting the environment: • Needs based training for inclusion in livelihood activities; • Psycho-social support to enhance self-esteem; • Train DPOs to advocate for rights of PWDs.


OVERCOMING OBSTACLES requires an INTEGRATED APPROACH
MAJOR BARRIERS
NO ENTRY
Society for all
Schools
Jobs
Oppor-tunity
FULL PARTICIPATION
lack of rehabilitation and equipment
physical barriers
attitudinal barriers
PARTIAL SOLUTIONS
(none alone is enough)
WELCOME
rehabilitation and equipment
accessibility
attitude change
INTEGRATED SOLUTION
WELCOME
Society for all
Schools
Jobs
Oppor-tunity
FULL PARTICIPATION
Rehabilitation and equipment + access + attitude change


The Medical Model of Disability
Is housebound
Needs help and carers
Confined to a wheelchair
The problem is the Disabled person
Has fits
Can't walk
Is sick Looking for a cure
Can't get up steps Can't walk
Can't see or hear
This is a diagram of the traditional Medical Model of Disability, which the Social Model was developed to challenge.

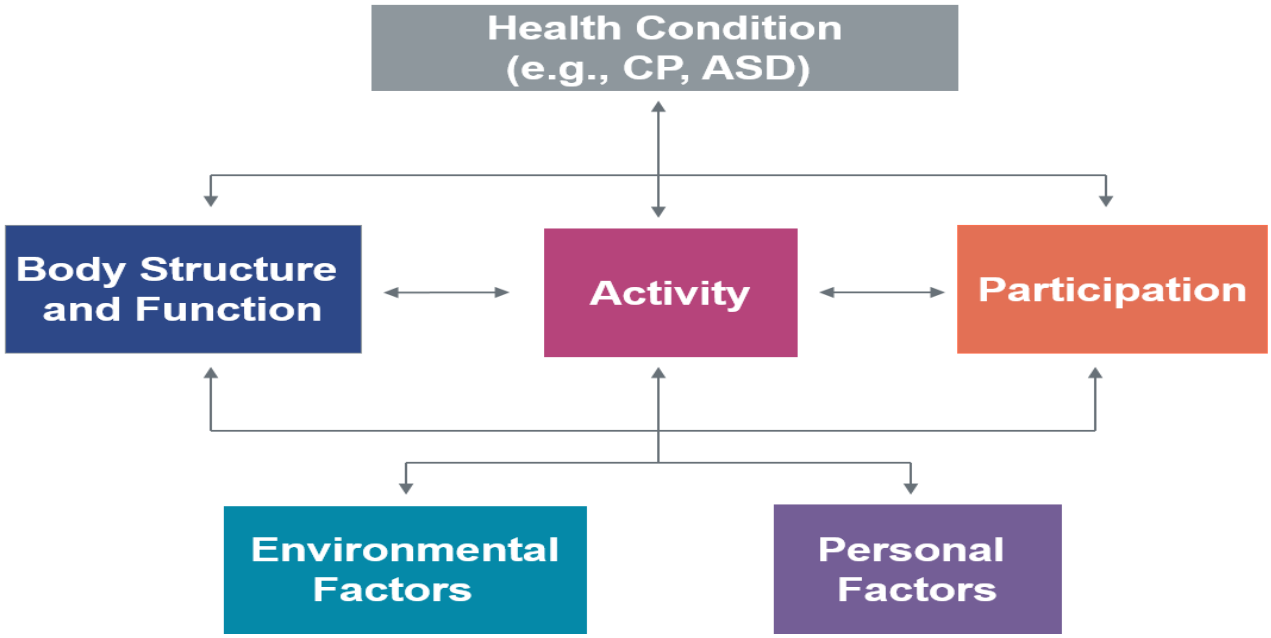

The Social Model of Disability
Badly designed buildings
Poor job prospects
Stairs not ramps No lifts
The problem is the disabling world
Isolated families
Special schools
Inaccessible transport No parking places
Few sign language interpreters
Discrimination
The Social Model of Disability states that the oppression and exclusion people with impairments face is caused by the way society is run and organised.


TRADITIONAL VS. SOCIAL
Problem
Problem
Problem
Problem
Problem
Problem
Barrier
Barrier
Barrier
Barrier
Barrier
Barrier


THE SOCIAL MODEL OF DISABILITY
SOCIETY
BARRIERS
BARRIERS
BARRIERS
BARRIERS
BARRIERS
BARRIERS
SOCIAL 'BARRIERS'
ENVIRONMENT
INACCESSIBLE
BUILDINGS
SERVICES
LANGUAGE
COMMUNICATION
ATTITUDES
PREJUDICE
STEREOTYPING
DISCRIMINATION
ORGANISATIONS
INFLEXIBLE
PROCEDURES
PRACTICES

2. The International Classification of Functioning, Disability, and Health (ICF)

A Global Model to Guide Clinical Thinking and Practice in Childhood Disability



Body Structure and Function
Anatomical parts of the body such as organs, limbs, and their components
The physiological functions of body systems (including psychological functions)

Activities
Function or the execution of a task or action by an individual such as walking, eating, talking

Participation: Involvement in a life situation such as inclusion in school, engaging in family activities or playing with peers.

Environmental factors
Physical, social, and attitudinal environments in which people live and conduct their lives; these are barriers or facilitators of the person's functioning. Aids, assistive devices and adaptations are facilitators.

Personal Factors
Internal personal factors which can include gender, age, education, profession, past and current experience, character, and other factors that influence how disability is experienced by the individual.

Why the ICF?

- A **universal model** – for all people, not just people with disabilities
- A **holistic model** - focuses on the whole person and their environment
- A **strengths-based model** – highlights what people can do!
- An **interactive model** – shows the interaction between a person and their environment

What is disability and who are children with disabilities?
The *International Classification of Functioning, Disability and Health* regards ***disability*** as neither purely biological nor social but instead the interaction between health conditions and environmental and personal factors.

Disability can occur at three levels:

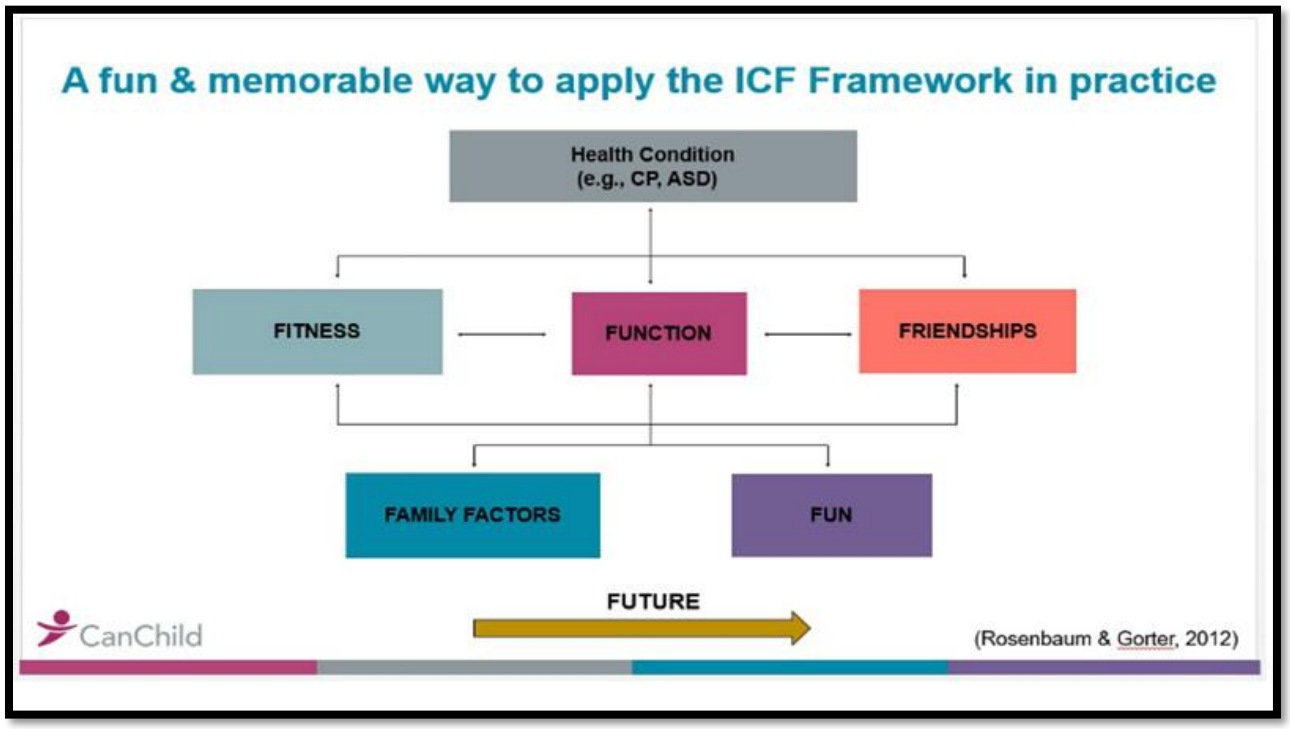
- an **impairment** in body function or structure
- a **limitation in activity**, such as the inability to read or move around
- a **restriction in participation**, such as exclusion from school

3. The "F-words in Childhood Disability": Function, Family, Fitness, Fun, Friends, Future

The F-words, developed based on the ICF components, focus on **six key areas of child development**.

The F-words recognize that **each factor is important for child development** and encourage people in the childhood disability field to adopt this way of thinking and apply these concepts in working with children with disabilities and their families.

The “F-words” in Childhood Disability



Function, Family, Fitness, Fun, Friends, Future

The ICF Framework[1] and the 'F-Words'[2]

Fitness
Everyone needs to stay fit and healthy, including me! Help me find ways to keep fit.

Function
I might do things differently but I CAN do them. How I do it is not important. Please let me try!

Friends
Having childhood friends is important. Please give me opportunities to make friends with my peers.

Body Structure and Function ⟷ **Activity** ⟷ **Participation**

Environmental Factors

Personal Factors

Family
They know me best and I trust them to do what's best for me. Listen to them. Talk to them. Hear them. Respect them.

Fun
Childhood is about having fun and play. This is how I learn and grow. Please help me do the activities that I find the most fun.

Future

1) World Health Organization. (2001) *International Classification of Functioning, Disability and Health (ICF)*
2) Rosenbaum P & Gorter JW. (2012). The 'F-words' in childhood disability: I swear this is how we should think! *Child Care Health Dev*; 38.
*Photos shared with permission from World CP Day.

For more information visit the F-words Knowledge Hub:
www.canchild.ca/f-words

CanChild

மூளை முடக்கு வாதம்:
எனக்குப் பிடித்த வார்த்தைகள்

1

செயல்பாடுகள்

2 குடும்பம்

3

உடற்பயிற்சி

4 நண்பர்கள்

5

கேளிக்கை

6 எதிர்காலம்

CanChild
www.canchild.ca

World Cerebral Palsy Day
worldcpday.org

WORLD CEREBRAL PALSY DAY OCTOBER 6

CHAPTER 2
UNDERSTANDING CHILD DEVELOPMENT

1. Early Childhood Development
2. Gross Motor and Fine motor Development
3. Play and Motor Development
4. Sensory Integration/Processing
5. Socio-Emotional Development

1. Early Childhood Development

Early Childhood: Early childhood spans the pre-natal period to eight years of age *(1)*. It is the most intensive period of brain development throughout the lifespan and therefore is the most critical stage of human development. What happens before birth and in the first few years of life plays a vital role in health and social outcomes *(20)*. While genetic factors play a role in shaping children's development, evidence indicates that the environment has a major influence during early childhood *(21)*.

Early Childhood Development: Early childhood development (ECD)[1] is a generic term that refers to a child's cognitive, social, emotional and physical development.

***Developmental Delay*:** Developmental delay refers to children who experience significant variation in the achievement of expected milestones for their actual or adjusted age *(8,15)*. Developmental delays are measured using validated developmental assessments *(22)* and may be mild, moderate or severe.

Using Developmental Charts

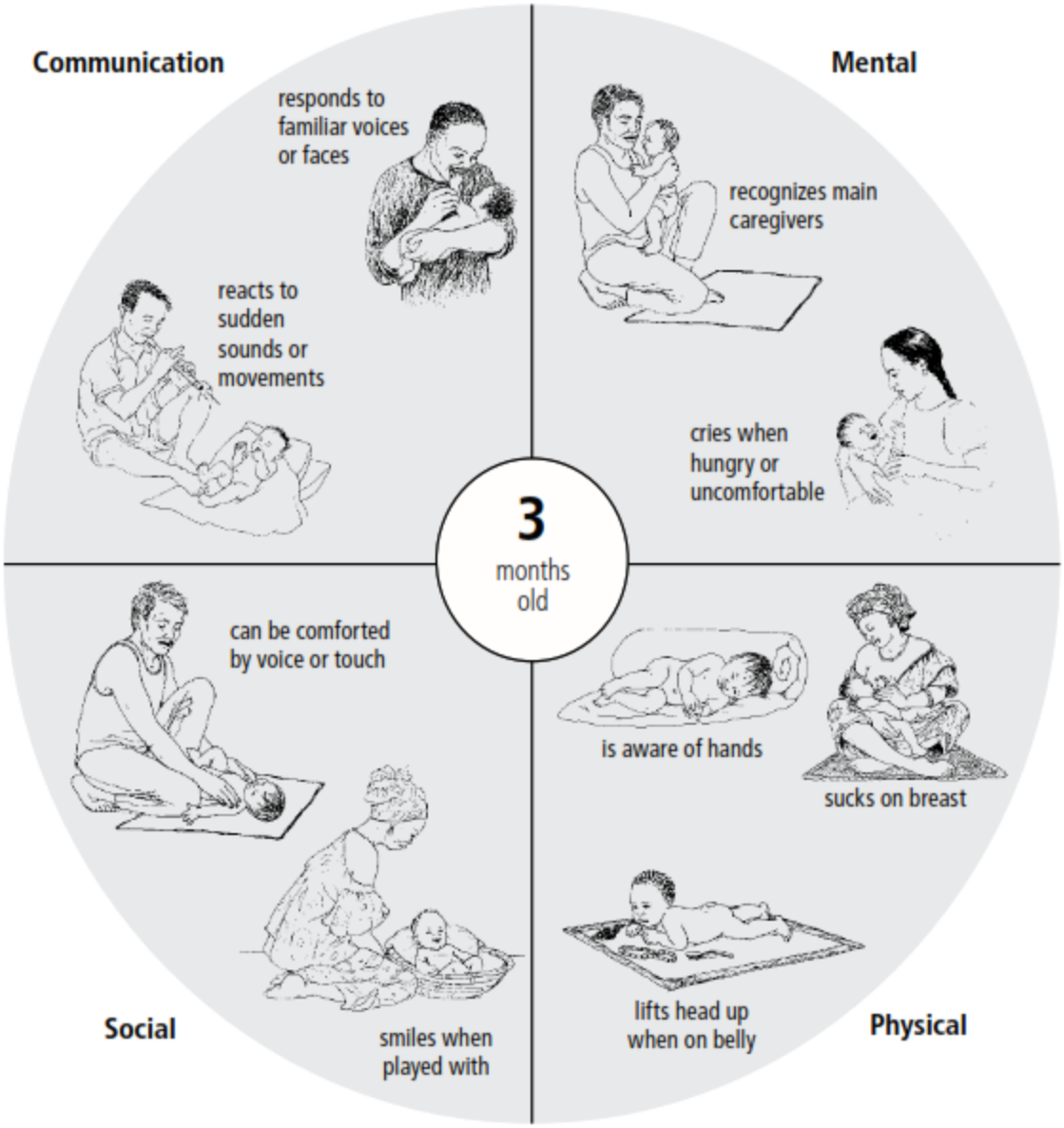
- Identifying delays in child's primary areas of development- physical, cognitive, communication, and social

Developmental delays are caused by poor birth outcomes, inadequate stimulation, malnutrition, chronic ill health and other organic problems, psychological and familial situations, or other environmental factors. While developmental delay may not be permanent, it can provide a basis for identifying children who may experience a disability *(8)*. This further emphasizes the importance of early identification to commence timely interventions with family involvement, aimed at preventing delays, promoting emerging competencies and creating a more stimulating and protective environment.

- Using charts to follow developmental progression and child's acquisition of new skills

https://en.hesperian.org/hhg/New_Where_There_Is_No_Doctor:Appendix_A:_Child_Development_Charts

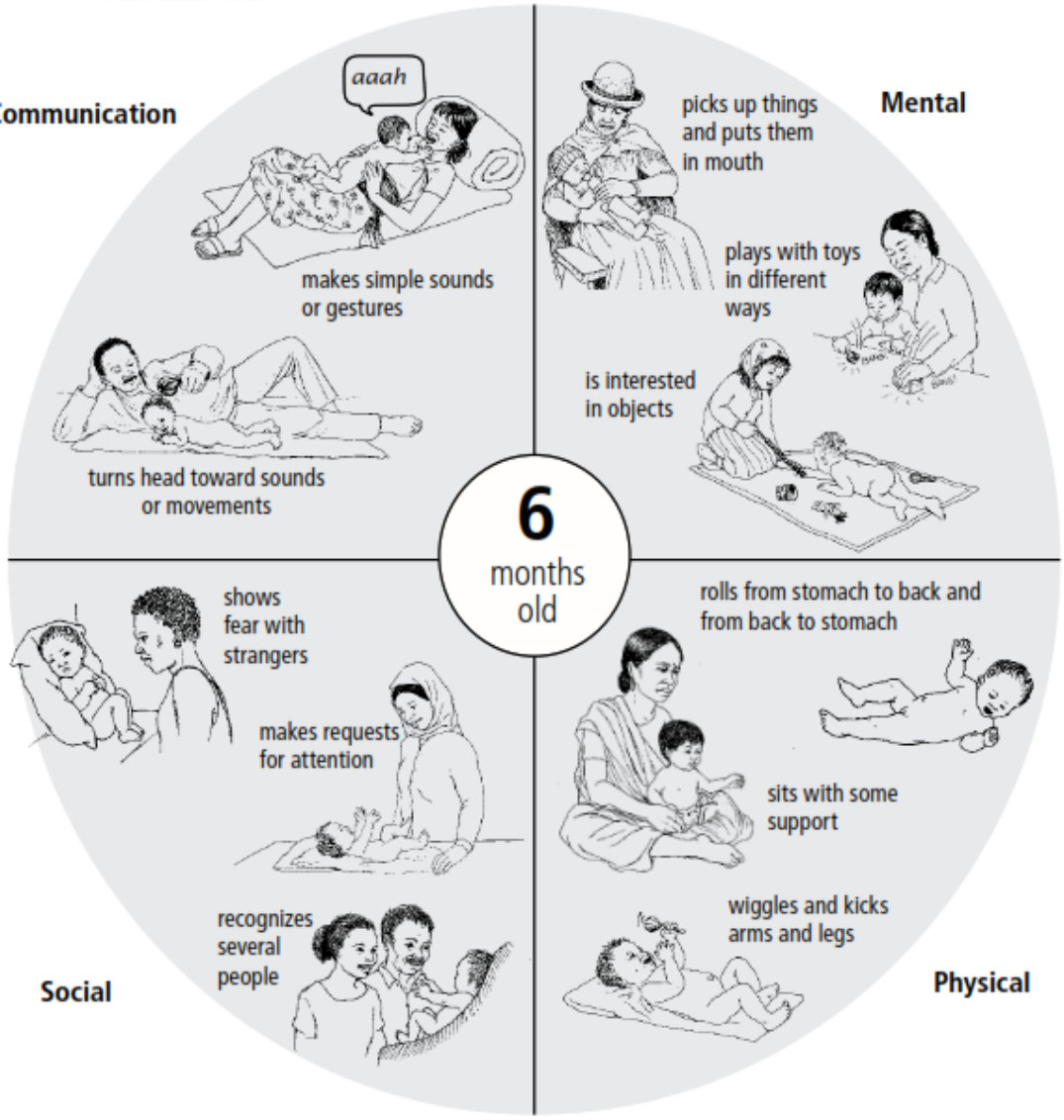
Each part of this circle shows a different area of development. The pictures and words are examples of skills that many babies have when they are **3 months old.**



Babies who cannot do 2 skills in any part of the circle will benefit from activities that help babies develop in that area. But the pictures are only examples of skills. For example, in the Communication part of the circle: you do not have to play the flute! The question to ask yourself is if your baby reacts to a sudden sound.

Keep in mind that a baby will learn best by doing activities that other babies the same age do in your community.

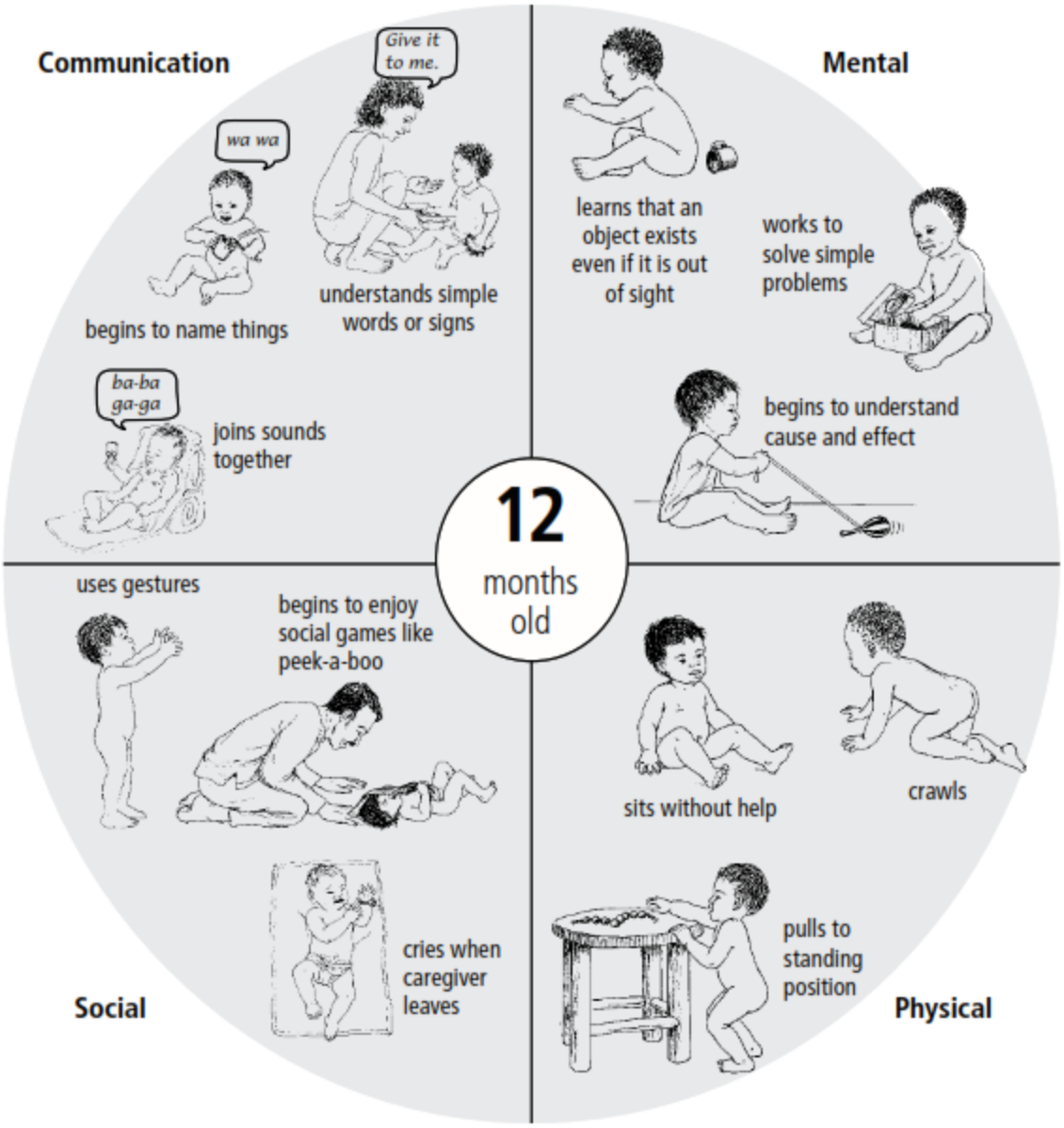
Each part of this circle shows a different area of development. The pictures and words are examples of skills that many babies have when they are **6 months old.**



Babies who cannot do 2 skills in any part of the circle will benefit from activities that help babies develop in that area. But the pictures are only examples of skills. For example, in the Physical part of the circle: your baby does not have to play with a rattle. The question to ask yourself is if your baby wiggles and kicks.

Keep in mind that a baby will learn best by doing activities that other babies the same age do in your community.

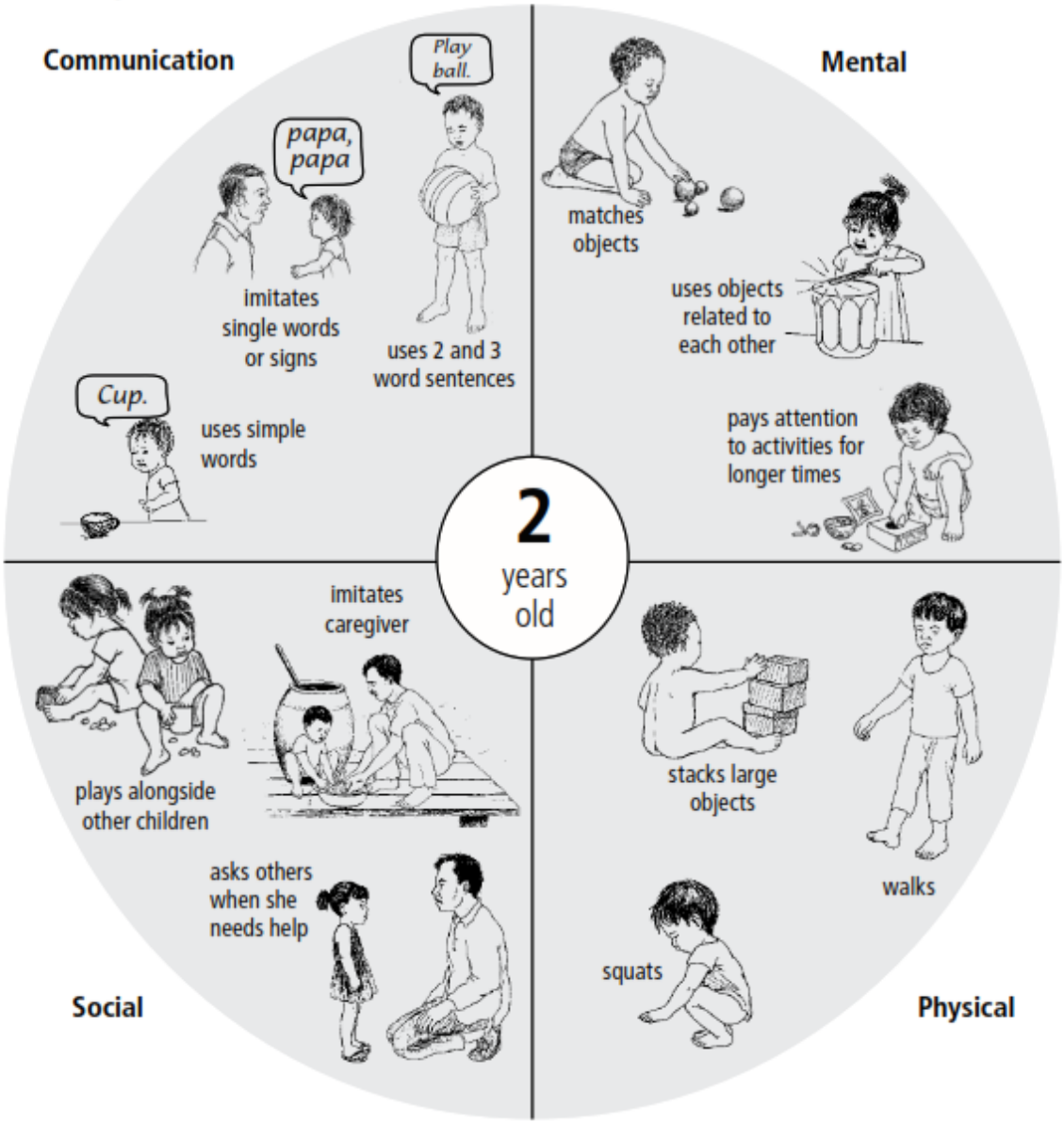
Each part of this circle shows a different area of development. The pictures and words are examples of skills that many babies have when they are **12 months old.**



Babies who cannot do 2 skills in any part of the circle will benefit from activities that help babies develop in that area. But the pictures are only examples of skills. For example, in the Social part of the circle: you do not have to play peek-a-boo with your baby. The question to ask yourself is if your baby enjoys social games.

Keep in mind that a baby will learn best by doing activities that other babies the same age do in your community.

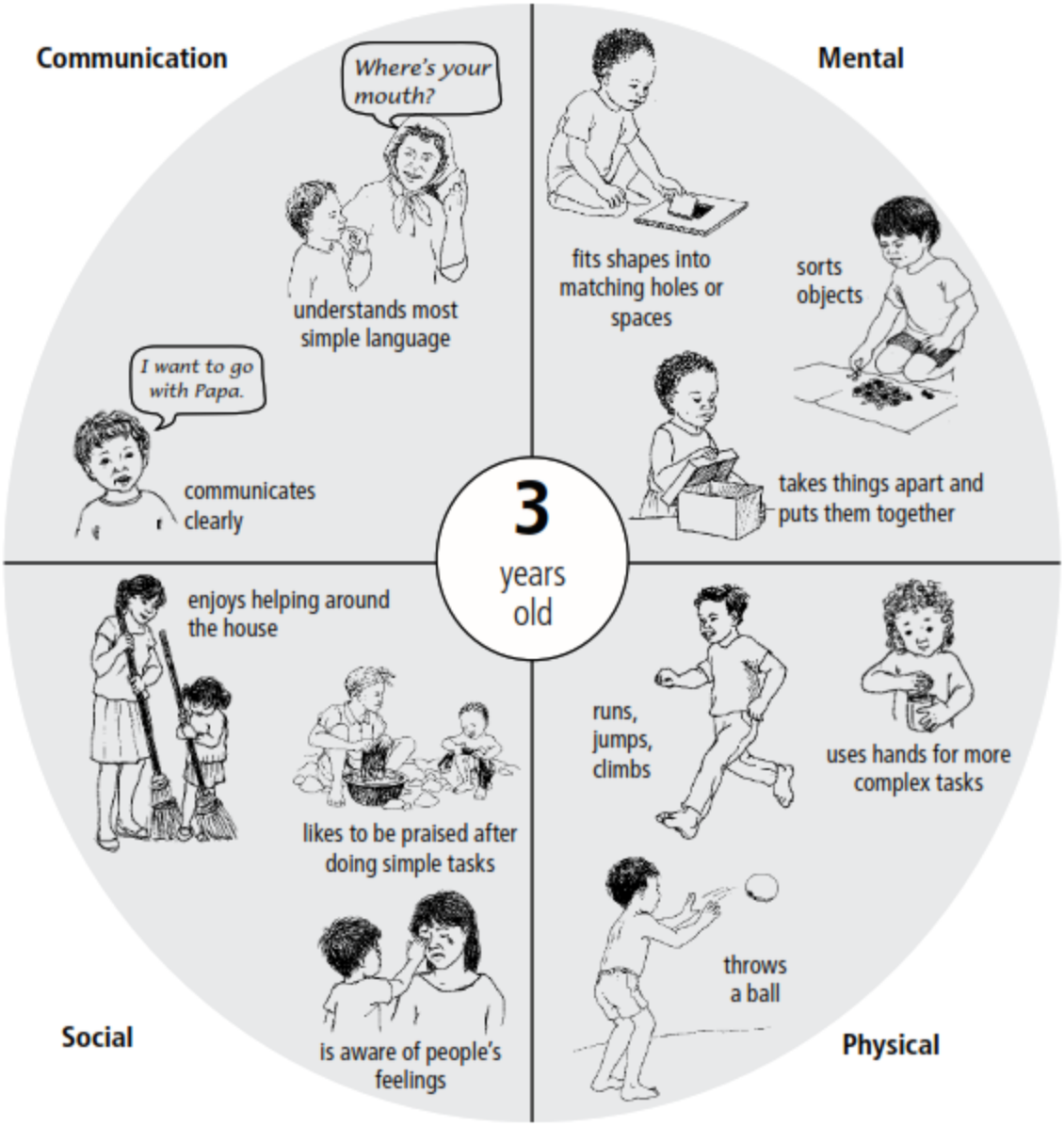
Each part of this circle shows a different area of development. The pictures and words are examples of skills that many children have when they are **2 years old.**



Children who cannot do 2 skills in any part of the circle will benefit from activities that help children develop in that area. But the pictures are only examples of skills. For example, in the Mental part of the circle: your child does not have to be able to play a drum. The question to ask yourself is if your child uses 2 objects together.

Keep in mind that a child will learn best by doing activities that other children the same age do in your community.

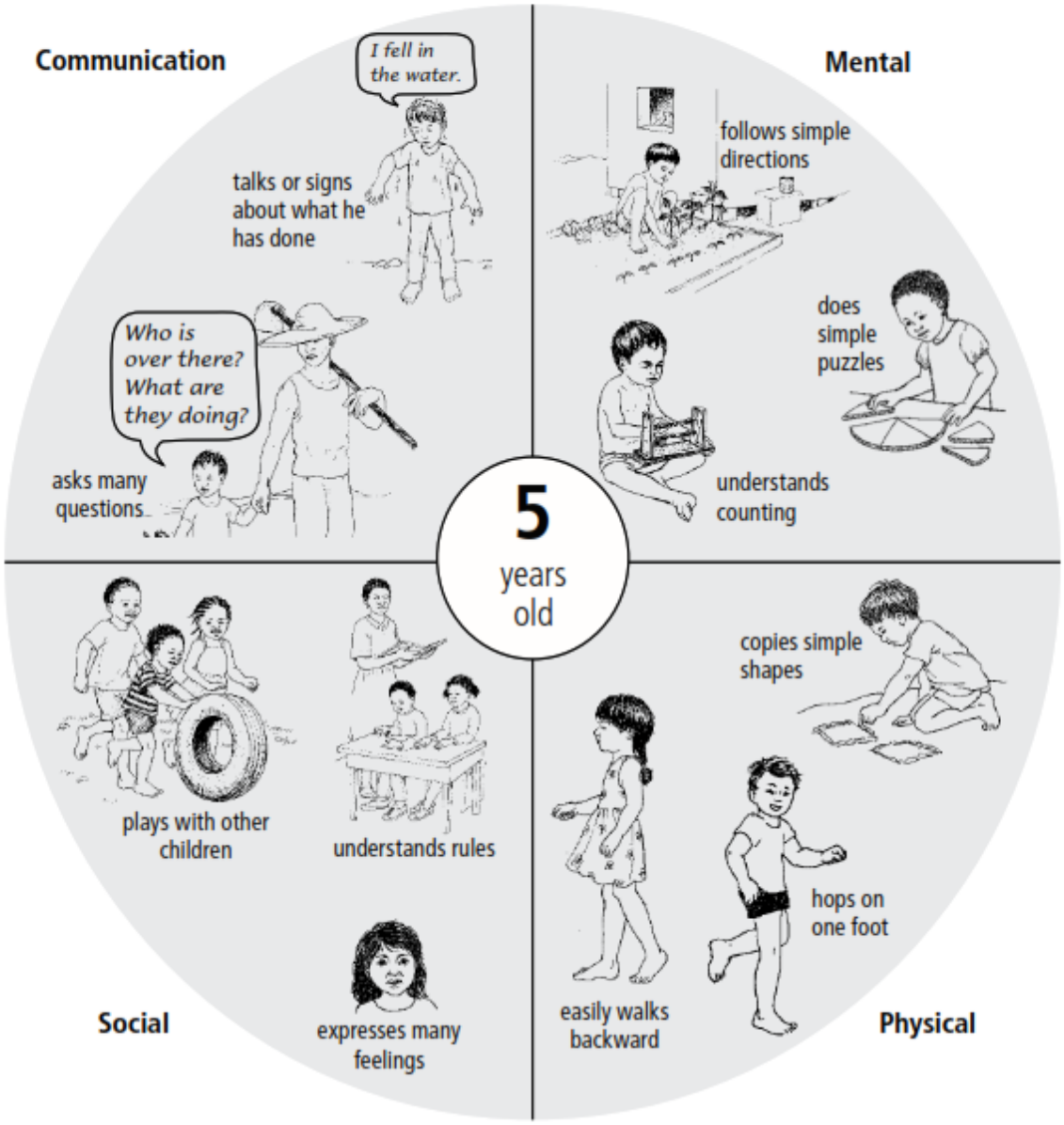
Each part of this circle shows a different area of development. The pictures and words are examples of skills that many children have when they are **3 years old.**



Children who cannot do 2 skills in any part of the circle will benefit from activities that help children develop in that area. But the pictures are only examples of skills. For example, in the Social part of the circle: your child does not have to sweep the floor. The question to ask yourself is if your child enjoys helping work with the family.

Keep in mind that a child will learn best by doing activities that other children the same age do in your community.

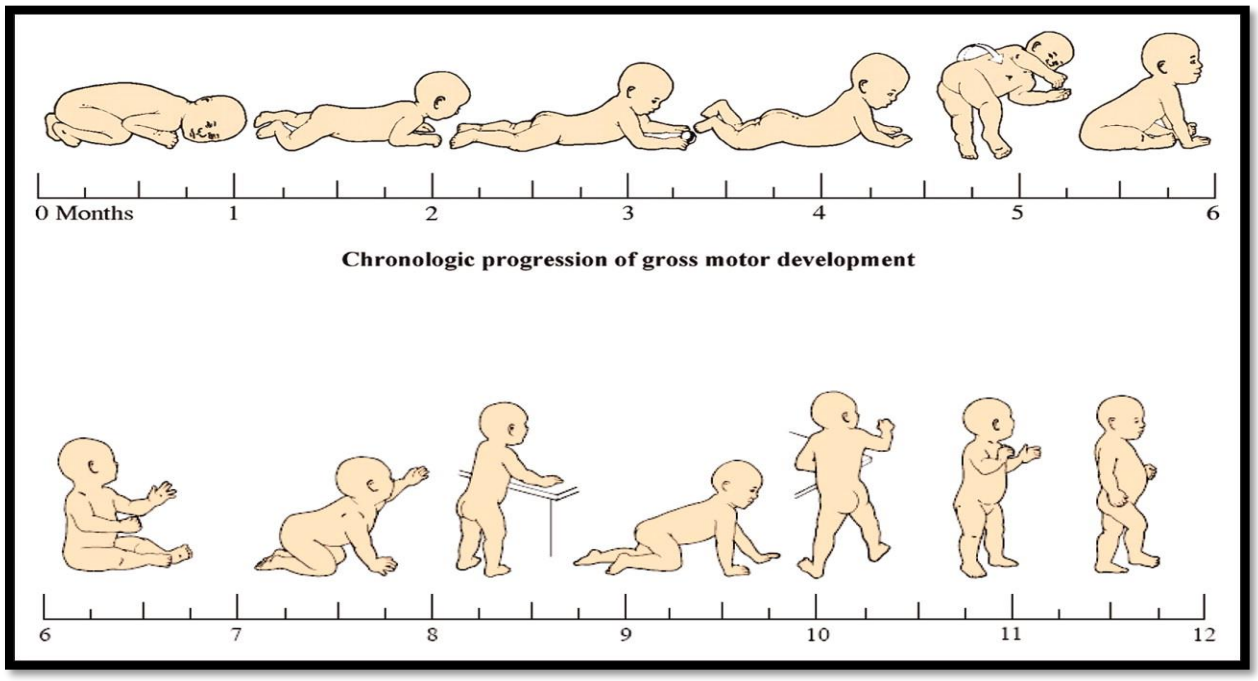
Each part of this circle shows a different area of development. The pictures and words are examples of skills that many children have when they are **5 years old.**



Children who cannot do 2 skills in any part of the circle will benefit from activities that help children develop in that area. But the pictures are only examples of skills. For example, in the Social part of the circle: your child does not have to be listening to a teacher. The question to ask yourself is if your child understands rules like other children do.

Keep in mind that a child will learn best by doing activities that other children the same age do in your community.

Gross Motor Development 0-6 months and 6-12 months



https://pathways.org/wp-content/uploads/2019/07/milestoneschecklist_updated.pdf

Gross Motor and Fine Motor Development 0-12 Months

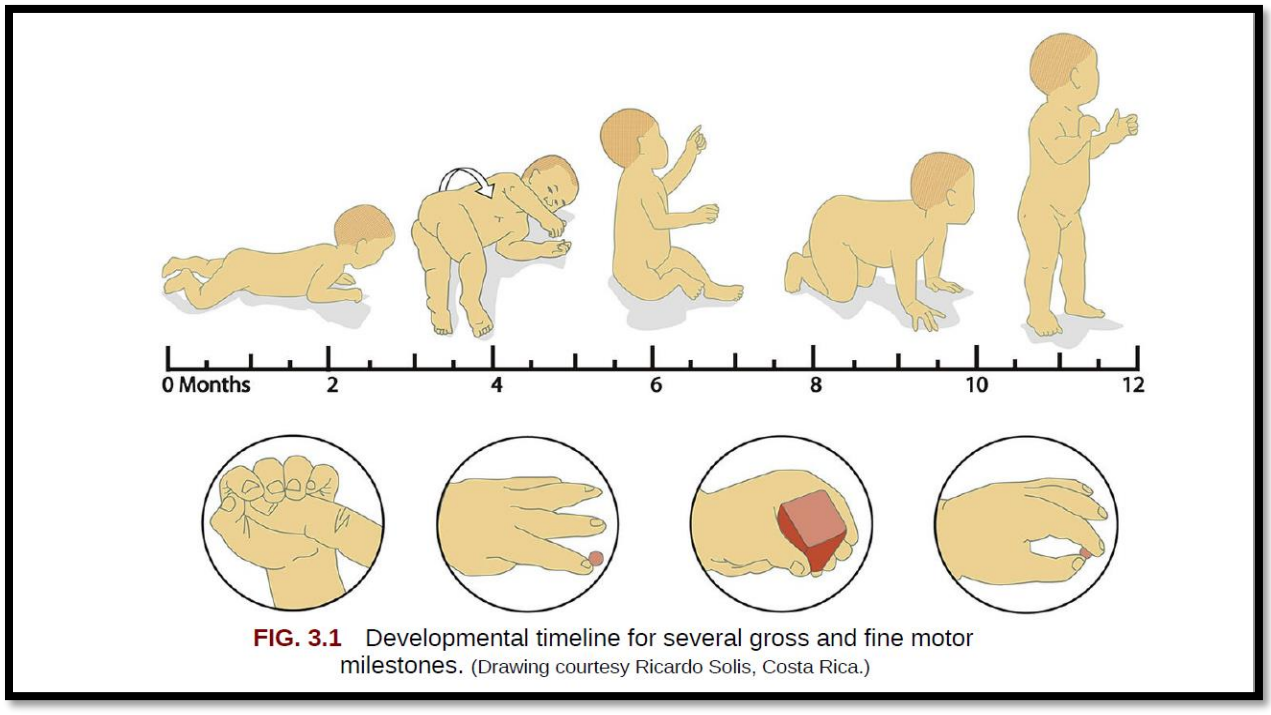


FIG. 3.1 Developmental timeline for several gross and fine motor milestones. (Drawing courtesy Ricardo Solis, Costa Rica.)

0-3 Month Milestones Checklist

All our milestones are supported by American Academy of Pediatrics findings. Use this checklist to track your child's development. If you notice your child isn't meeting any of their milestones, bring this checklist to your healthcare provider to discuss your observations and concerns.

	Yes	No
Motor		
While lying on tummy, pushes up on arms		
While lying on tummy, lifts and holds head up		
Able to move fists from closed to open		
Able to bring hands to mouth		
Moves legs and arms off of surface when excited		
Sensory		
While lying on back, visually tracks a moving toy from side to side		
While lying on back, attempts to reach for a toy held above their chest		
While lying on back, keeps head centered to watch faces or toys		
Able to calm with rocking, touching, and gentle sounds		
Enjoys a variety of movements		
Communication		
Makes eye contact		
Cries differently for different needs (e.g. hungry vs. tired)		
Coos and smiles		
Turns head towards sound or voice		
Quiets or smiles in response to sound or voice		
Shows interest in faces		
Feeding		
Latches onto nipple or bottle		
Tongue moves forward and back to suck		
Drinks 2 oz. to 6 oz. of liquid per feeding, 6 times per day		
Sucks and swallows well during feeding		

4-6 Month Milestones Checklist

All our milestones are supported by American Academy of Pediatrics findings. Use this checklist to track your child's development. If you notice your child isn't meeting any of their milestones, bring this checklist to your healthcare provider to discuss your observations and concerns.

	Yes	No
Motor		
Reaches for toys while on tummy		
While lying on back, transfers toy from hand to the other		
While lying on back, reaches both hands to play with feet		
Uses hands to support self while sitting		
Rolls from back to tummy and tummy to back		
While standing with support, accepts entire weight with legs		
Sensory		
Uses both hands to explore toys		
Generally happy when not hungry or tired		
Brings hands and objects to mouth		
Able to calm with rocking, touching, and gentle sounds		
Is not upset by everyday sounds		
Enjoys a variety of movements		
Communication		
Begins to use consonant sounds in babbling, e.g. "da, da, da"		
Makes different kinds of sounds to express feelings		
Uses babbling to get attention		
Listens and responds when spoken to		
Reacts to sudden noises or sounds		
Notices toys that make sounds		

7-9 Month Milestones Checklist

All our milestones are supported by American Academy of Pediatrics findings. Use this checklist to track your child's development. If you notice your child isn't meeting any of their milestones, bring this checklist to your healthcare provider to discuss your observations and concerns.

	Yes	No
Motor		
Sits without support		
Sits and reaches for toys without falling		
Moves from tummy or back into sitting		
Starts to move with alternate leg and arm movement e.g. creeping, crawling		
Picks up head and pushes through elbows during Tummy Time		
Turns head to visually track objects while sitting		
Shows more control while rolling and sitting		
Picks up small objects with thumbs and fingers		
In simple play imitates others		
Sensory		
Explores and examines an object using both hands and mouth		
Turns several pages of a chunky (board) book at once		
Experiments with the amount of force needed to pick up different objects		
Focuses on objects near and far		
Investigates shapes, sizes, and textures of toys and surroundings		
Observes environment from a variety of positions – while lying on back or tummy, sitting, crawling, and standing with assistance		
Enjoys a variety of movements – bouncing up and down, rocking back and forth		

10-12 Month Milestones Checklist

All our milestones are supported by American Academy of Pediatrics findings. Use this checklist to track your child's development. If you notice your child isn't meeting any of their milestones, bring this checklist to your healthcare provider to discuss your observations and concerns.

	Yes	No
Motor		
Releases objects into a container with a large opening		
Uses thumb and pointer finger to pick up tiny objects		
Pulls to stand and cruises along furniture		
Stands alone and takes several independent steps		
Moves in and out of various positions to explore environment and get desired toys		
Maintains balance in sitting when throwing objects		
Claps hands		

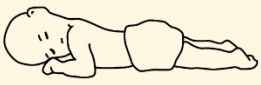
13-18 Month Milestones Checklist

All our milestones are supported by American Academy of Pediatrics findings. Use this checklist to track your child's development. If you notice your child isn't meeting any of their milestones, bring this checklist to your healthcare provider to discuss your observations and concerns.

	Yes	No
Motor		
Walks independently and seldom falls		
Squats to pick up a toy		
Stacks two objects or blocks		

SIGNS TO WATCH FOR IN PHYSICAL DEVELOPMENT

3 Months



- ◯ Difficulty lifting head
- ◯ Stiff legs with little or no movement

- ◯ Pushes back with head
- ◯ Keeps hands fisted and lacks arm movement

6 Months

- ◯ Rounded back
- ◯ Unable to lift head up
- ◯ Poor head control

- ◯ Difficult to bring arms forward to reach out
- ◯ Arches back and stiffens legs

- ◯ Arms held back
- ◯ Stiff legs

9 Months

- ◯ Uses one hand predominately
- ◯ Rounded back
- ◯ Poor use of arms in sitting

- ◯ Difficulty crawling
- ◯ Uses only one side of body to move

- ◯ Inability to straighten back
- ◯ Cannot take weight on legs

12 Months

- ◯ Difficulty getting to stand because of stiff legs and pointed toes
- ◯ Only uses arms to pull up to standing

- ◯ Sits with weight to one side
- ◯ Strongly flexed or stiffly extended arms
- ◯ Needs to use hand to maintain sitting

15 Months

- ◯ Unable to take steps independently
- ◯ Poor standing balance, falls frequently
- ◯ Walks on toes

For more child development info, visit Pathways.org

4. Play and Motor Development

The Stages of Play

- **Unoccupied Play (Birth-3 Months):**
  When a baby is making a lot of movements with their arms, legs, hands, feet, etc. They are learning about and discovering how their body moves.
- **Solitary Play (Birth-2 Years):**
  When a child plays alone and are not interested in playing with others quite yet.
- **Spectator/Onlooker Behavior (2 Years):**
  When a child watches and observes other children playing but will not play with them.
- **Parallel Play (2+ Years):**
  When a child plays alongside or near to others but does not play with them.
- **Associate Play (3-4 Years):**
  When a child starts to interact with others during play, but there is not a large amount of cooperation required, e.g. kids playing on the playground but doing different things like climbing, swinging, etc.
- **Cooperative Play (4+ years):**
  When a child plays with others and has interest in both the activity and other children involved in playing.

Use Play to Help Meet Milestones

From birth, a baby will use play to explore the world around them and develop important life skills.

0-6 Months

- Show baby interesting objects such as a brightly colored mobile or toy
- Talk to baby often to familiarize baby with your voice, respond when they coo and babble
- Place baby in different positions so they can see the world from different angles
- Let baby bring objects to mouth to explore and experience new textures
- Vary facial expressions and gestures so baby has the opportunity to imitate them
- Use a mirror or favorite toy to help your baby engage in and enjoy Tummy Time

7-12 Months

- Play peek-a-boo
- Use a mirror to show faces to baby
- Provide baby with a safe environment to crawl and explore
- Place baby in a variety of positions such as on tummy, side, etc.
- Give baby opportunities to learn actions have effects, e.g. when they drop a toy and it falls to the ground
- Expose baby to a variety of age appropriate toys, e.g. balls, shape sorters, music toys, or common household items like pots and spoons

1-3 Years

- Allow child to spend time with objects and toys they enjoy
- Give child crayons or markers so they can practice scribbling
- Encourage child to interact with peers
- Help child explore their body through different movements, e.g. walking, jumping, and standing on one leg
- Provide opportunities to create make-believe situations with objects, e.g. pretending to drink out of empty cup
- Respond when child speaks, answer questions, and provide verbal encouragement

4-6 Years

- Provide opportunities for child to sing, dance, and try a variety of movements, e.g. hopping, swinging, climbing, and doing somersaults
- Tell stories to child and ask them questions about what they remember
- Give child time and space to act out imaginary scenes, roles, and activities
- Allow child to move between make-believe games and reality e.g. playing house and helping you with chores
- Schedule time for child to interact with friends to practice socializing and building friendships

Recommendations for
Care for Child Development

NEWBORN, BIRTH UP TO 1 WEEK

Your baby learns from birth

PLAY Provide ways for your baby to see, hear, move arms and legs freely, and touch you. Gently soothe, stroke and hold your child. Skin to skin is good.

COMMUNICATE
Look into baby's eyes and talk to your baby. When you are breastfeeding is a good time. Even a newborn baby sees your face and hears your voice.

1 WEEK UP TO 6 MONTHS

PLAY Provide ways for your child to see, hear, feel, move freely, and touch you. Slowly move colourful things for your child to see and reach for. *Sample toys: shaker rattle, big ring on a string.*

COMMUNICATE
Smile and laugh with your child. Talk to your child. Get a conversation going by copying your child's sounds or gestures.

6 MONTHS UP TO 9 MONTHS

PLAY Give your child clean, safe household things to handle, bang, and drop. *Sample toys: containers with lids, metal pot and spoon.*

COMMUNICATE
Respond to your child's sounds and interests. Call the child's name, and see your child respond.

9 MONTHS UP TO 12 MONTHS

PLAY Hide a child's favourite toy under a cloth or box. See if the child can find it. Play peek-a-boo.

COMMUNICATE
Tell your child the names of things and people. Show your child how to say things with hands, like "bye bye". *Sample toy: doll with face.*

12 MONTHS UP TO 2 YEARS

PLAY Give your child things to stack up, and to put into containers and take out. *Sample toys: Nesting and stacking objects, container and clothes clips.*

COMMUNICATE
Ask your child simple questions. Respond to your child's attempts to talk. Show and talk about nature, pictures and things.

2 YEARS AND OLDER

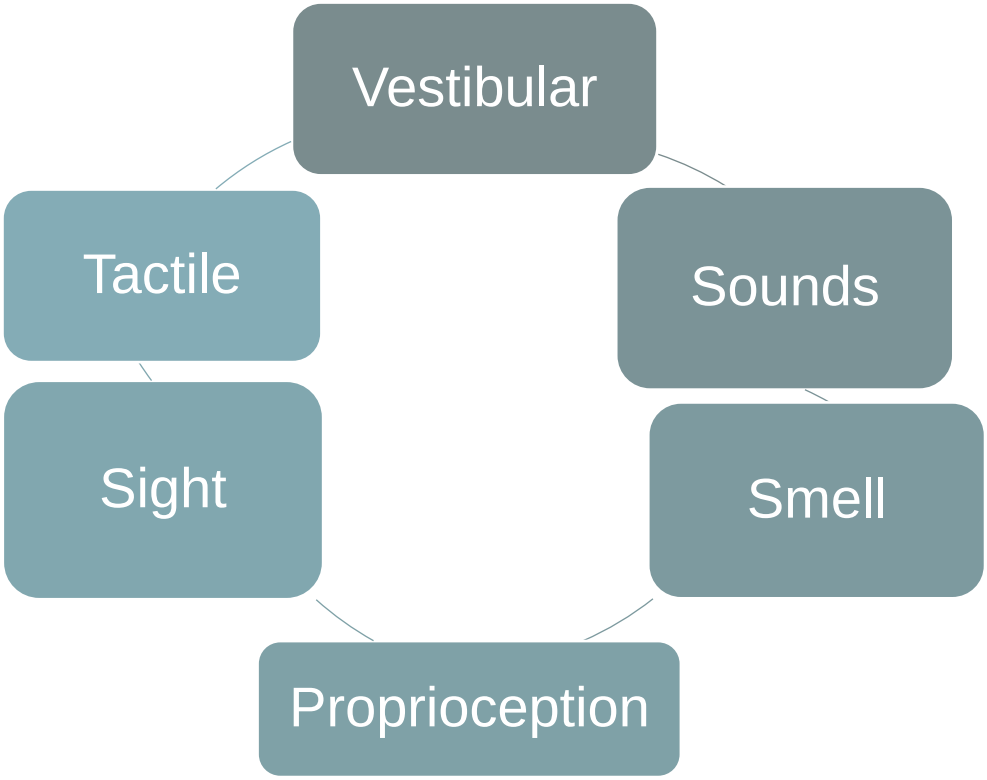
PLAY Help your child count, name and compare things. Make simple toys for your child. *Sample toys: Objects of different colours and shapes to sort, stick or chalk board, puzzle.*

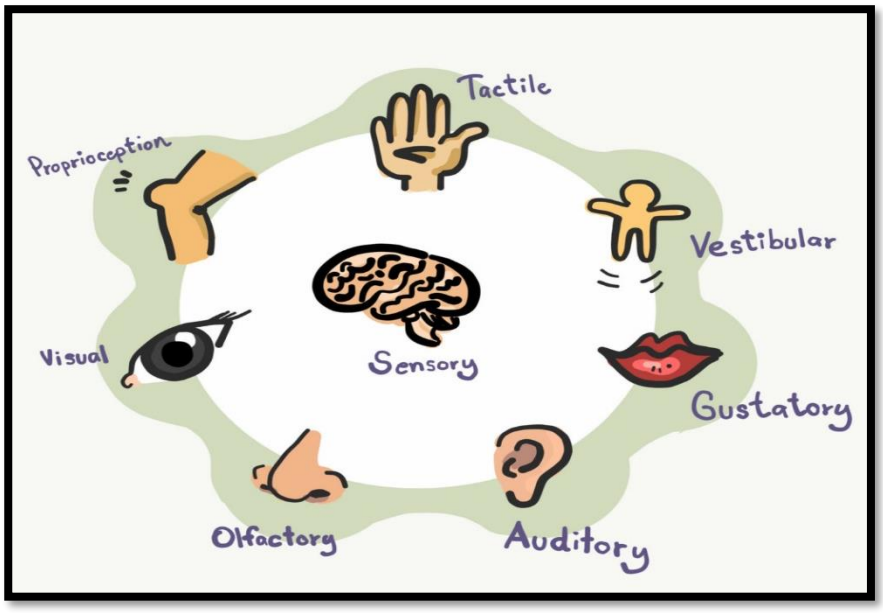
COMMUNICATE
Encourage your child to talk and answer your child's questions. Teach your child stories, songs and games. Talk about pictures or books. *Sample toy: book with pictures*

Early Childhood Development and Disability: A Discussion Paper- WHO/ UNICEF, 2012

Sensory Integration/Processing

Integrating and processing information from the tactile, proprioceptive, and vestibular systems, along with the other senses (sight, sound, taste, and smell), makes it possible to successfully participate in everyday activities.





Some Possible Signs of Sensory Integration/Processing Issues

- ◯ Overly sensitive or under reactive to touch, movement, sights, or sounds in the environment
- ◯ Unusually high or low activity level
- ◯ Easily distracted; poor attention to tasks
- ◯ Delays in speech, motor skills, or academic achievement
- ◯ Coordination problems; appears clumsy or awkward
- ◯ Poor body awareness
- ◯ Difficulty learning new tasks or figuring out how to play with unfamiliar toys
- ◯ Appears to be disorganized most of the time
- ◯ Difficulty with transitions between activities or environments
- ◯ Immature social skills
- ◯ Impulsivity or lack of self-control
- ◯ Difficulty calming self once "wound up"

Social-Emotional Development By Age

FIRST YEAR

0-3 Months

- Begins to smile in response to their caregivers, also called a social smile
- Develops more facial and body expressions
- Can briefly calm themselves, e.g. sucking on thumb
- Recognizes they are having fun and may cry when playing stops
- Makes eye contact and looks at people while interacting

4-6 Months

- Is usually happy when surrounded by cheerful caregivers
- Responds to and copies some movements and facial expressions
- Develops an awareness of their surroundings and expresses a desire to engage, e.g. banging objects or toys

7-9 Months

- May show anxiety around strangers
- Plays social games, e.g. *peek-a-boo*
- Learns the meaning of words when they're used consistently
- Enjoys looking at self in a mirror
- Becomes more "clingy" when leaving caregiver, e.g. reaches for caregiver when being held by someone else

10-12 Months

- Attempts to display independence, e.g. crawling for exploration or refusing food
- May show fear around unfamiliar people and objects
- Tries to get attention by repeating sounds and gestures
- Enjoys imitating people in play

1-2 Years

- Shows defiant behavior to establish independence, e.g. having tantrums
- Does not understand what others think or feel and believes everyone thinks as he does, e.g. gets upset when no longer the center of attention
- Enjoys being around other children, but not yet able to share easily
- Can play independently for brief periods of time

2-3 Years

- Copies others in more complex tasks, e.g. cleaning, cooking, self-care
- Shows affection towards friends
- Shows an increasing variety of emotions
- Upset when there are major changes in routine
- Seems concerned about personal needs and may even act "selfishly"

3-4 Years

- Starts cooperating more with others during play, e.g. sharing toys
- Can sometimes work out conflicts with other children, e.g. taking turns in small groups
- Uses words to communicate needs instead of screaming, grabbing, or whining
- Becomes more independent in daily activities, e.g. may choose own clothes to wear

4-5 Years

- Has more developed friendships and maybe even a "best friend"
- More cooperative with rules
- Understands and is sensitive to others' feelings
- Understands the difference between real life and make believe
- Has changes in attitude, e.g. is demanding at times and cooperative at times

Counsel the Family about Problems in **Care for Child Development**

If the mother does not breastfeed, counsel the mother to:

Hold the child close when feeding, look at the child, and talk or sing to the child.

If caregivers do not know what the child does to play or communicate:

- Remind caregivers that children play and communicate from birth.
- Demonstrate how the child responds to activities.

If caregivers feel too burdened or stressed to play and communicate with the child:

- Listen to the caregivers feelings, and help them identify a key person who can share their feelings and help them with their child.
- Build their confidence by demonstrating their ability to carry out a simple activity.
- Refer caregivers to a local service, if needed and available.

If caregivers feel that they do not have time to play and communicate with the child:

- Encourage them to combine play and communication activities with other care for the child.
- Ask other family members to help care for the child or help with chores.

If caregivers have no toys for the child to play with, counsel them to:

- Use any household objects that are clean and safe.
- Make simple toys.
- Play with the child. The child will learn by playing with the caregivers and other people.

If the child is not responding, or seems slow:

- Encourage the family to do extra play and communication activities with the child.
- Check to see whether the child is able to see and to hear.
- Refer the child with difficulties to special services.
- Encourage the family to play and communicate with the child through touch and movement, as well as through language.

If the mother or father has to leave the child with someone else for a period of time:

- Identify at least one person who can care for the child regularly, and give the child love and attention.
- Get the child used to being with the new person gradually.
- Encourage the mother and father to spend time with the child when possible.

If it seems that the child is being treated harshly:

Recommend better ways of dealing with the child.

- Encourage the family to look for opportunities to praise the child for good behaviour.
- Respect the child's feelings. Try to understand why the child is sad or angry.
- Give the child choices about what to do, instead of saying "don't".

References:

Early Childhood Development and Disability: A Discussion Paper- WHO/ UNICEF, 2012

www.pathways.org

https://en.hesperian.org/hhg/New_Where_There_Is_No_Doctor:Appendix_A:_Child_Development_Charts

https://en.hesperian.org/hhg/Disabled_Village_Children:Normal_Child_Development

http://hesperian.org/wp-content/uploads/pdf/en_misc/en_DVC_Ch34_Child_Development_Chart.pdf

https://en.hesperian.org/hhg/Disabled_Village_Children:Chapter_34:_Child_Development_and_Developmental_Delay

https://en.hesperian.org/hhg/Disabled_Village_Children:The_Need_for_Early_Stimulation

https://en.hesperian.org/hhg/Disabled_Village_Children:General_Guidelines_for_Helping_a_Child%E2%80%99s_Development

CHAPTER 3

CEREBRAL PALSY

Patterns of CP, pathophysiology, impairments
Types of CP, classifications
THE GMFCS- Gross Motor Function Classification System
Motor development curves for GMFCS level

What is Cerebral Palsy? - Cerebral Palsy Alliance

https://www.youtube.com/watch?v=Rsk3VQ-gr34

The Types of Cerebral Palsy- Cerebral Palsy Alliance

https://www.youtube.com/watch?v=cOfUGUNxEqU

World CP Day

https://worldcpday.org/

THE GMFCS- Gross Motor Function Classification System
https://www.canchild.ca/en/resources/42-gross-motor-function-classification-system-expanded-revised-gmfcs-e-r#

Check out "GMFCS Video" from CanChild on Vimeo
https://vimeo.com/293380093

Other References:

https://en.hesperian.org/hhg/Disabled_Village_Children:Chapter_9:_Cerebral_Palsy

http://en.hesperian.org/hhg/Disabled_Village_Children:How_to_Recognize_Cerebral_Palsy

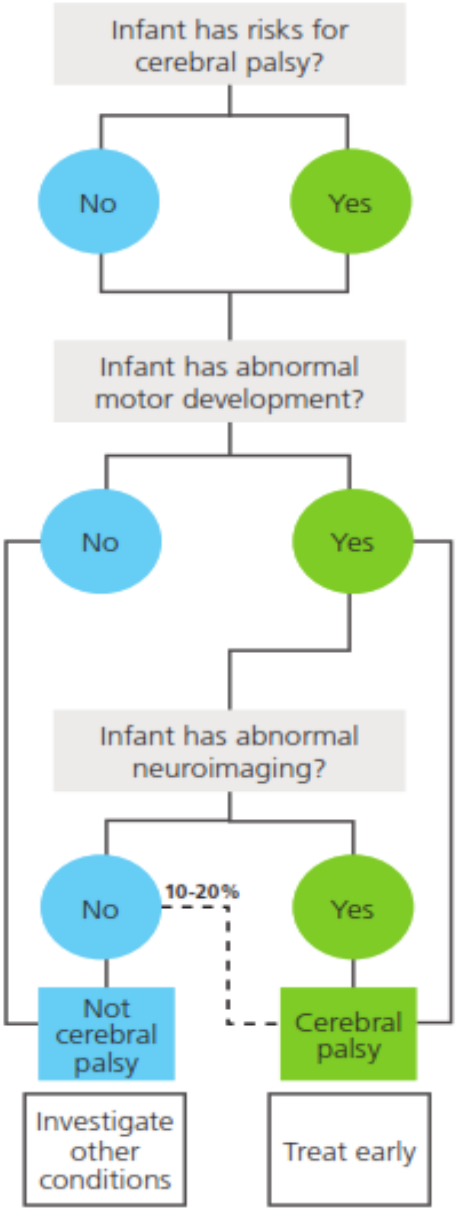
https://en.hesperian.org/hhg/Disabled_Village_Children:Types_of_Cerebral_Palsy

Cerebral Palsy

DIAGNOSIS AND TREATMENT

Cerebral palsy is a physical disability that affects movement and posture.

DIAGNOSIS



Risks for Cerebral Palsy

Risk Factor	CP Risk
Maternal Risks (thyroid, pre-eclampsia, bleeds, infection, IUGR, placental abnormalities, multiples)+/-	
Born Premature • <28 weeks • 28-31 weeks • 31-37 weeks	 10.0% 5.0% 0.7%
Term Born • Encephalopathy • Healthy, no known risks	12.0% 0.1%

Assessing Motor Development

Age: <20 weeks (corrected)	Age 6-12 months
General Movements Assessment. 95% predictive.	Developmental Assessment of Young Children (DAYC). 83% predictive.
Hammersmith Infant Neurological Assessment (HINE). Helps predict severity.	Hammersmith Infant Neurological Assessment (HINE). 90% predictive.

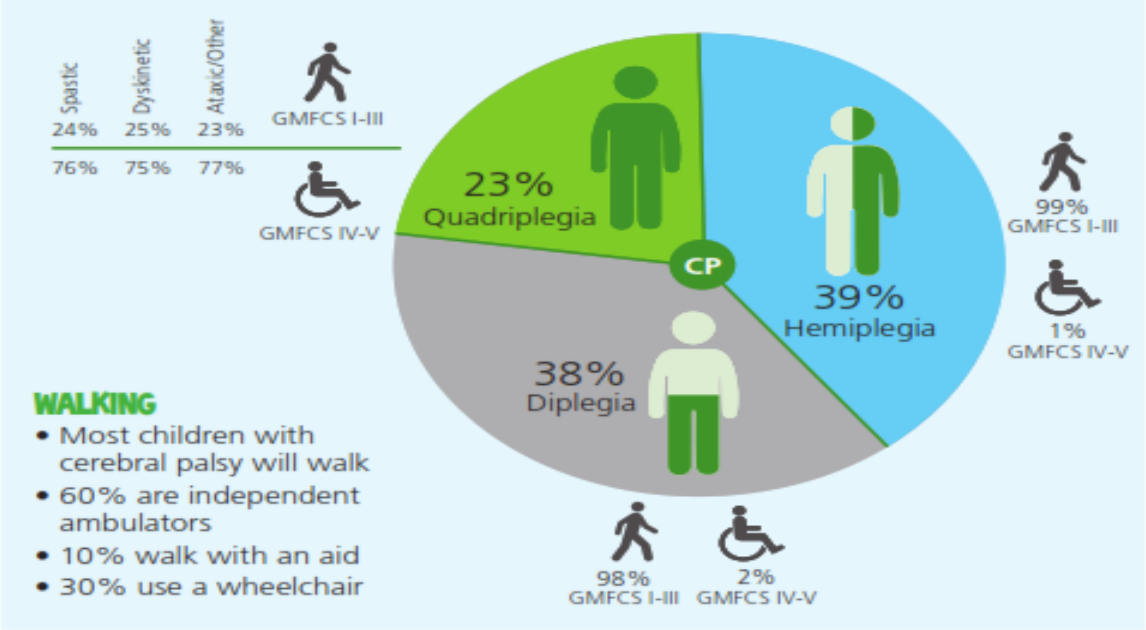
Neuroimaging

Abnormal Neuroimaging	% of all CP
• Periventricular white matter injury	19%
• Cerebral malformation	11%
• CVA	11%
• Grey matter injury	22%
• Intracranial haemorrhage	3%
• Infection	2%
• Non-specific	19%
• Normal	13%

17 million
people with cerebral palsy worldwide

PROGNOSIS

Cerebral palsy can affect different parts of the body:



WALKING

- Most children with cerebral palsy will walk
- 60% are independent ambulators
- 10% walk with an aid
- 30% use a wheelchair

LIFE- LONG

Cerebral palsy is a life long disability. Disability may increase with age, and ageing may occur earlier.

SEVERITY

Predictions of severity are most accurate at 2 years of age.

PAIN, BEHAVIOUR AND SLEEP DISORDERS

in people with cerebral palsy are under-recognised. Assess and treat.

TREATMENT

Without rehabilitation and orthopaedic management, a person with cerebral palsy can deteriorate physically.

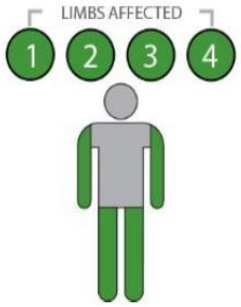
Parts of the body

WORLD CEREBRAL PALSY DAY OCTOBER 6

Cerebral palsy can affect different parts of the body.
For example, for people with **spasticity**:

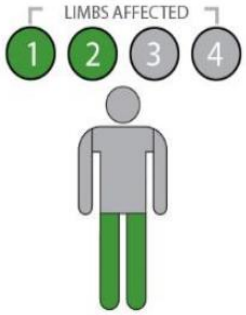
Quadriplegia/Bilateral Spasticity

Both arms and legs are affected. The muscles of the trunk, face and mouth are often also affected.



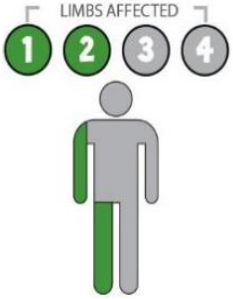
Diplegia/Bilateral Spasticity

Both legs are affected. The arms may be affected to a lesser extent.



Hemiplegia/Unilateral Spasticity

One side of the body (one arm and one leg) is affected.



Motor types

WORLD CEREBRAL PALSY DAY OCTOBER 6

SPASTIC: 80-90%
Most common form of CP. Muscles appear stiff and tight. Arises from damage to the Motor Cortex.

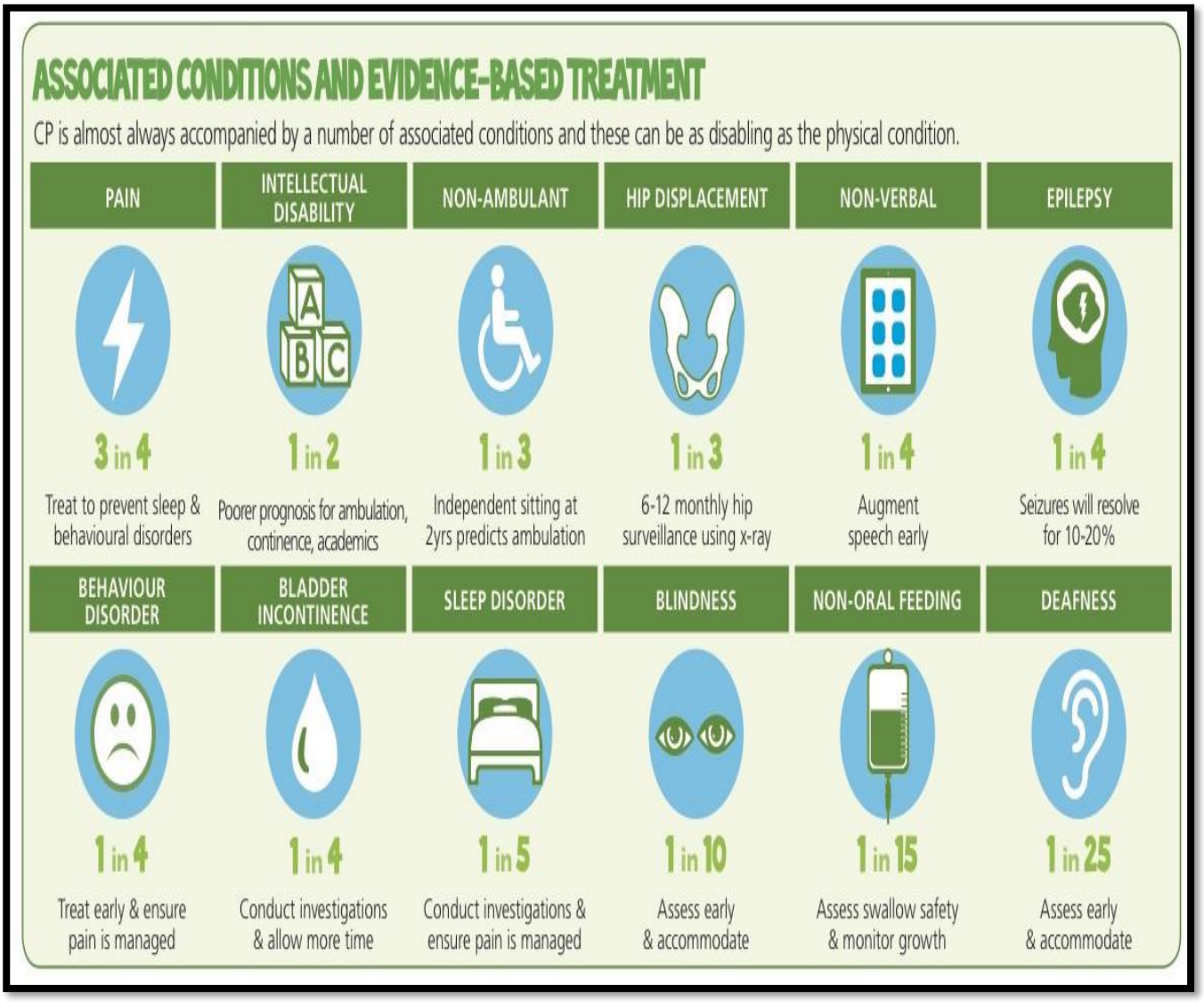
DYSKINETIC: 6%
Characterised by involuntary movements such as dystonia, athetosis and/or chorea. Arises from damage to the Basal Ganglia.

ATAXIC: 5%
Characterised by shaky movements. Affects balance and sense of positioning in space. Arises from damage to the Cerebellum.

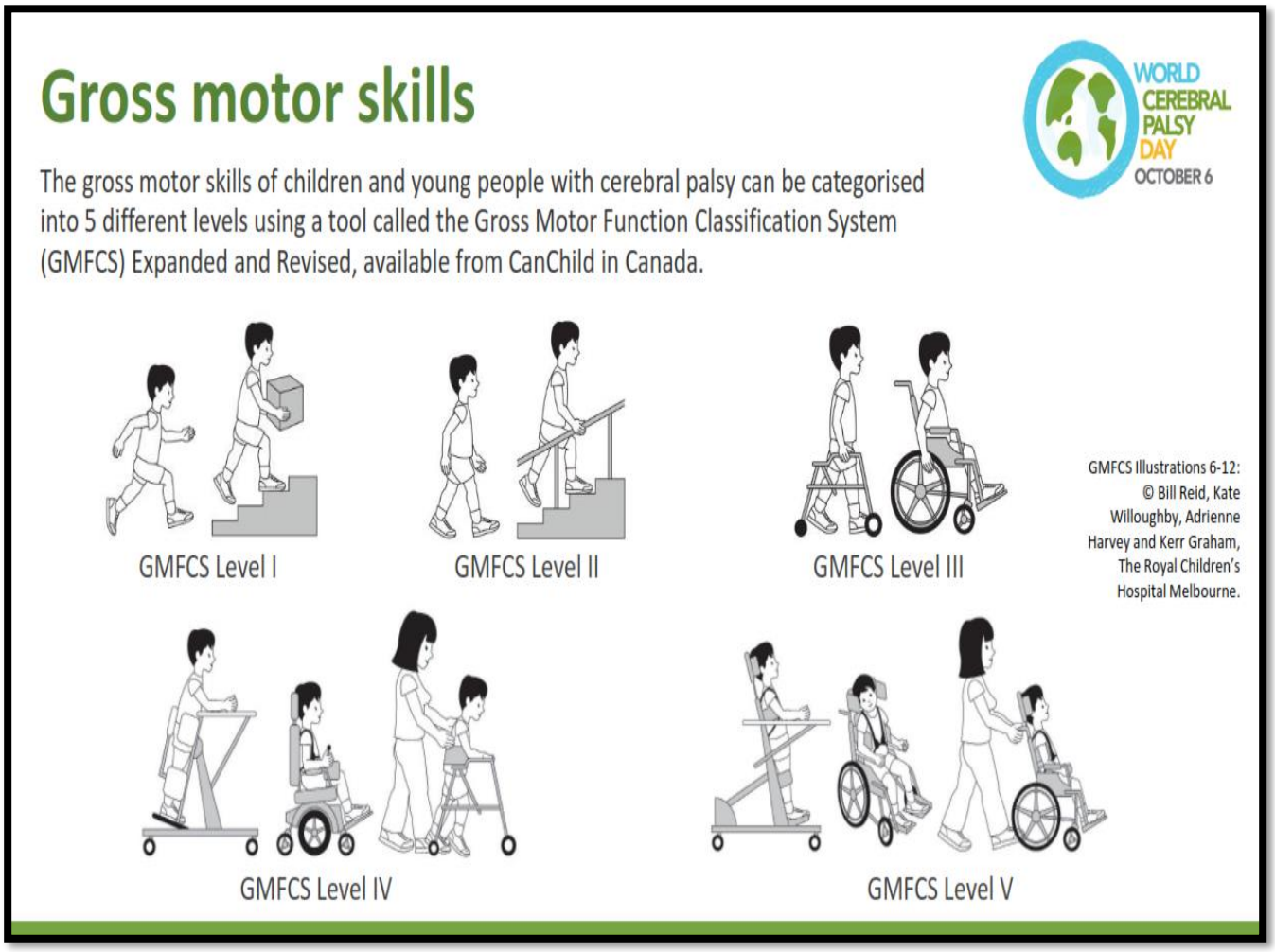
MIXED TYPES
A number of children with CP will have two motor types present, e.g. spasticity and dystonia.

Cerebral Palsy (CP) describes a group of permanent disorders of the development of movement and posture, *causing activity limitation, that are attributed to non-progressive disturbances that occurred in the developing fetal or infant brain*.
The motor disorders of CP are *often accompanied by* disturbances of sensation, perception, cognition, communication, and behaviour, by epilepsy and by secondary musculoskeletal problems.

Rosenbaum P, Paneth N, Leviton A, Goldstein M & Bax M (2007a) A report: *the definition and classification of cerebral palsy. April 2006 Dev Med Child Neurol, Suppl 49, 8-14.*



THE GMFCS
Gross Motor Function Classification System



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GMFCS – E & R
Gross Motor Function Classification System
Expanded and Revised

(Reference: Dev Med Child Neurol 1997;39:214-223)

INTRODUCTION & USER INSTRUCTIONS

- The Gross Motor Function Classification System (GMFCS) for cerebral palsy is based on **self-initiated movement**, with emphasis on sitting, transfers, and mobility.
- The distinctions between levels are **meaningful in daily life**.
- Distinctions are based on **functional limitations**, the need for **hand-held mobility devices** (such as walkers, crutches, or canes) or **wheeled mobility**, and to a much lesser extent, quality of movement.
- The distinctions between Levels I and II are not as pronounced as the distinctions between the other levels, particularly for infants less than 2 years of age.
- **Please note:** A GMFCS level determined in a child less than 2 years of age is not highly reliable. It should be confirmed after age 2.
- The expanded GMFCS (2007) emphasizes the concepts in the WHO's International Classification of Functioning, Disability and Health (ICF). The impact that environmental and personal factors may have on what children are observed or reported to do.
- Emphasis is on **usual performance** in home, school, and community settings (i.e., what they do), rather than what they are known to be able to do at their best (capability).
- It is important to classify **current performance in gross motor function** and not to include judgments about the quality of movement or prognosis for improvement.

GMFCS – E & R
Gross Motor Function Classification System
Expanded and Revised

The title for each level is the method of mobility that is most characteristic of performance after 6 years of age.

- The **descriptions of functional abilities and limitations for each age band** are broad and are not intended to describe all aspects of the function of individual children/youth.
- The scale is ordinal, with no intent that the distances between levels be considered equal or that children with cerebral palsy are equally distributed across the five levels.
- It **emphasizes abilities** rather than limitations.
- Gross motor function is **dependent on age**, especially during infancy and early childhood.
- For each level, **separate descriptions** are provided in **several age bands.**
- The focus of the GMFCS is on determining which **level best represents the child's present abilities and limitations** in gross motor function.
- A **summary of the distinctions between each pair of levels** is provided to assist in determining the level that most closely resembles a child's current gross motor function.

- Children **below age 2** should be considered at their corrected age if they were premature. The descriptions for the **6 to 12 year age bands** reflect the potential impact of **environment factors** (e.g., distances in school and community) and **personal factors** (e.g., energy demands and social preferences) on methods of mobility.
- The gross motor function of children who are **able to perform** the functions described in any particular level will probably be **classified at or above** that level of function.
- The gross motor function of children who **cannot perform** the functions of a particular level should be **classified below** that level of function.

OPERATIONAL DEFINITIONS

Body support walker – A mobility device that supports the pelvis and trunk. The child/youth is physically positioned in the walker by another person.

Hand-held mobility device – Canes, crutches, and anterior and posterior walkers that do not support the trunk during walking.

Physical assistance – Another person manually assists the child/youth to move.

Powered mobility – The child/youth actively controls the joystick or electrical switch that enables independent mobility. The mobility base may be a wheelchair, scooter or other type of powered mobility device.

Self-propels manual wheelchair – The child/youth actively uses arms and hands or feet to propel the wheels and move.

Transported – A person manually pushes a mobility device (e.g., wheelchair, stroller, or pram) to move the child/youth from one place to another.

Walks – Unless otherwise specified indicates no physical assistance from another person or any use of a hand-held mobility device. An orthosis (i.e., brace or splint) may be worn.

Wheeled mobility – Refers to any type of device with wheels that enables movement (e.g., stroller, manual wheelchair, or powered wheelchair).

GENERAL HEADINGS FOR EACH LEVEL

LEVEL I	-	Walks without Limitations
LEVEL II	-	Walks with Limitations
LEVEL III	-	Walks Using a Hand-Held Mobility Device
LEVEL IV	-	Self-Mobility with Limitations; May Use Powered Mobility
LEVEL V	-	Transported in a Manual Wheelchair

DISTINCTIONS BETWEEN LEVELS

Distinctions Between Levels I and II - Compared with children and youth in Level I, children and youth in Level II have limitations walking long distances and balancing; may need a hand-held mobility device when first learning to walk; may use wheeled mobility when traveling long distances outdoors and in the community; require the use of a railing to walk up and down stairs; and are not as capable of running and jumping.

Distinctions Between Levels II and III - Children and youth in Level II are capable of walking without a hand-held mobility device after age 4 (although they may choose to use one at times). Children and youth in Level III need a hand-held mobility device to walk indoors and use wheeled mobility outdoors and in the community.

Distinctions Between Levels III and IV - Children and youth in Level III sit on their own or require at most limited external support to sit, are more independent in standing transfers, and walk with a hand-held mobility device. Children and youth in Level IV function in sitting (usually supported) but self-mobility is limited. Children and youth in Level IV are more likely to be transported in a manual wheelchair or use powered mobility.

Distinctions Between Levels IV and V - Children and youth in Level V have severe limitations in head and trunk control and require extensive assisted technology and physical assistance. Self-mobility is achieved only if the child/youth can learn how to operate a powered wheelchair.

Gross Motor Function Classification System – Expanded and Revised (GMFCS – E & R)

BEFORE 2ND BIRTHDAY

LEVEL I: Infants move in and out of sitting and floor sit with both hands free to manipulate objects. Infants crawl on hands and knees, pull to stand and take steps holding on to furniture. Infants walk between 18 months and 2 years of age without the need for any assistive mobility device.

LEVEL II: Infants maintain floor sitting but may need to use their hands for support to maintain balance. Infants creep on their stomach or crawl on hands and knees. Infants may pull to stand and take steps holding on to furniture.

LEVEL III: Infants maintain floor sitting when the low back is supported. Infants roll and creep forward on their stomachs.

LEVEL IV: Infants have head control but trunk support is required for floor sitting. Infants can roll to supine and may roll to prone.

LEVEL V: Physical impairments limit voluntary control of movement. Infants are unable to maintain antigravity head and trunk postures in prone and sitting. Infants require adult assistance to roll.

BETWEEN 2ND AND 4TH BIRTHDAY

LEVEL I: Children floor sit with both hands free to manipulate objects. Movements in and out of floor sitting and standing are performed without adult assistance. Children walk as the preferred method of mobility without the need for any assistive mobility device.

LEVEL II: Children floor sit but may have difficulty with balance when both hands are free to manipulate objects. Movements in and out of sitting are performed without adult assistance. Children pull to stand on a stable surface. Children crawl on hands and knees with a reciprocal pattern, cruise holding onto furniture and walk using an assistive mobility device as preferred methods of mobility.

LEVEL III: Children maintain floor sitting often by "W-sitting" (sitting between flexed and internally rotated hips and knees) and may require adult assistance to assume sitting. Children creep on their stomach or crawl on hands and knees (often without reciprocal leg movements) as their primary methods of self-mobility. Children may pull to stand on a stable surface and cruise short distances. Children may walk short distances indoors using a hand-held mobility device (walker) and adult assistance for steering and turning.

LEVEL IV: Children floor sit when placed, but are unable to maintain alignment and balance without use of their hands for support. Children frequently require adaptive equipment for sitting and standing. Self-mobility for short distances (within a room) is achieved through rolling, creeping on stomach, or crawling on hands and knees without reciprocal leg movement.

LEVEL V: Physical impairments restrict voluntary control of movement and the ability to maintain antigravity head and trunk postures. All areas of motor function are limited. Functional limitations in sitting and standing are not fully compensated for through the use of adaptive equipment and assistive technology. At Level V, children have no means of independent movement and are transported. Some children achieve self-mobility using a powered wheelchair with extensive adaptations.

BETWEEN 4TH AND 6TH BIRTHDAY

LEVEL I: Children get into and out of, and sit in, a chair without the need for hand support. Children move from the floor and from chair sitting to standing without the need for objects for support. Children walk indoors and outdoors, and climb stairs. Emerging ability to run and jump.

LEVEL II: Children sit in a chair with both hands free to manipulate objects. Children move from the floor to standing and from chair sitting to standing but often require a stable surface to push or pull up on with their arms. Children walk without the need for a hand-held mobility device indoors and for short distances on level surfaces outdoors. Children climb stairs holding onto a railing but are unable to run or jump.

LEVEL III: Children sit on a regular chair but may require pelvic or trunk support to maximize hand function. Children move in and out of chair sitting using a stable surface to push on or pull up with their arms. Children walk with a hand-held mobility device on level surfaces and climb stairs with assistance from an adult. Children frequently are transported when traveling for long distances or outdoors on uneven terrain.

LEVEL IV: Children sit on a chair but need adaptive seating for trunk control and to maximize hand function. Children move in and out of chair sitting with assistance from an adult or a stable surface to push or pull up on with their arms. Children may at best walk short distances with a walker and adult supervision but have difficulty turning and maintaining balance on uneven surfaces. Children are transported in the community. Children may achieve self-mobility using a powered wheelchair.

LEVEL V: Physical impairments restrict voluntary control of movement and the ability to maintain antigravity head and trunk postures. All areas of motor function are limited. Functional limitations in sitting and standing are not fully compensated for through the use of adaptive equipment and assistive technology. At Level V, children have no means of independent movement and are transported. Some children achieve self-mobility using a powered wheelchair with extensive adaptations.

BETWEEN 6TH AND 12TH BIRTHDAY

Level I: Children walk at home, school, outdoors, and in the community. Children are able to walk up and down curbs without physical assistance and stairs without the use of a railing. Children perform gross motor skills such as running and jumping but speed, balance, and coordination are limited. Children may participate in physical activities and sports depending on personal choices and environmental factors.

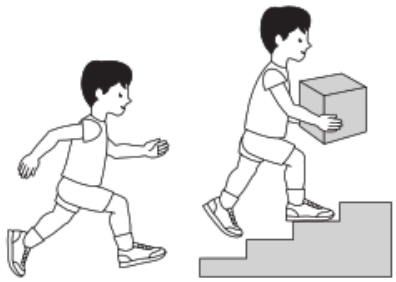
Level II: Children walk in most settings. Children may experience difficulty walking long distances and balancing on uneven terrain, inclines, in crowded areas, confined spaces or when carrying objects. Children walk up and down stairs holding onto a railing or with physical assistance if there is no railing. Outdoors and in the community, children may walk with physical assistance, a hand-held mobility device, or use wheeled mobility when traveling long distances. Children have at best only minimal ability to perform gross motor skills such as running and jumping. Limitations in performance of gross motor skills may necessitate adaptations to enable participation in physical activities and sports.

Level III: Children walk using a hand-held mobility device in most indoor settings. When seated, children may require a seat belt for pelvic alignment and balance. Sit-to-stand and floor-to-stand transfers require physical assistance of a person or support surface. When traveling long distances, children use some form of wheeled mobility. Children may walk up and down stairs holding onto a railing with supervision or physical assistance. Limitations in walking may necessitate adaptations to enable participation in physical activities and sports including self-propelling a manual wheelchair or powered mobility.

Level IV: Children use methods of mobility that require physical assistance or powered mobility in most settings. Children require adaptive seating for trunk and pelvic control and physical assistance for most transfers. At home, children use floor mobility (roll, creep, or crawl), walk short distances with physical assistance, or use powered mobility. When positioned, children may use a body support walker at home or school. At school, outdoors, and in the community, children are transported in a manual wheelchair or use powered mobility. Limitations in mobility necessitate adaptations to enable participation in physical activities and sports, including physical assistance and/or powered mobility.

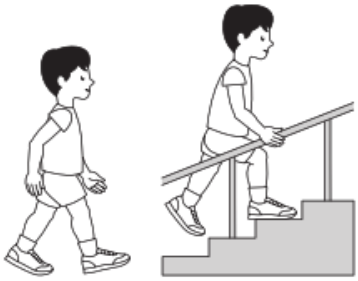
Level V: Children are transported in a manual wheelchair in all settings. Children are limited in their ability to maintain antigravity head and trunk postures and control arm and leg movements. Assistive technology is used to improve head alignment, seating, standing, and and/or mobility but limitations are not fully compensated by equipment. Transfers require complete physical assistance of an adult. At home, children may move short distances on the floor or may be carried by an adult. Children may achieve self-mobility using powered mobility with extensive adaptations for seating and control access. Limitations in mobility necessitate adaptations to enable participation in physical activities and sports including physical assistance and using powered mobility.

GMFCS E & R between 6th and 12th birthday: Descriptors and illustrations



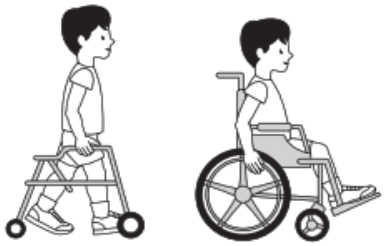
GMFCS Level I

Children walk at home, school, outdoors and in the community. They can climb stairs without the use of a railing. Children perform gross motor skills such as running and jumping, but speed, balance and coordination are limited.



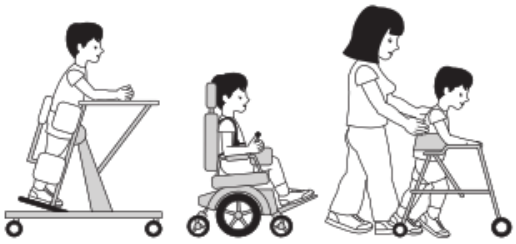
GMFCS Level II

Children walk in most settings and climb stairs holding onto a railing. They may experience difficulty walking long distances and balancing on uneven terrain, inclines, in crowded areas or confined spaces. Children may walk with physical assistance, a hand-held mobility device or used wheeled mobility over long distances. Children have only minimal ability to perform gross motor skills such as running and jumping.



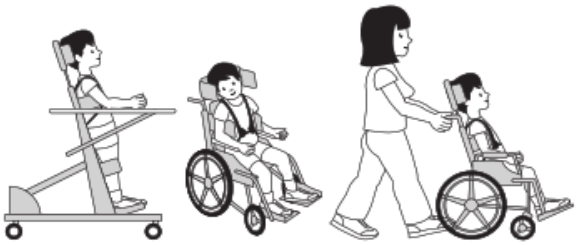
GMFCS Level III

Children walk using a hand-held mobility device in most indoor settings. They may climb stairs holding onto a railing with supervision or assistance. Children use wheeled mobility when traveling long distances and may self-propel for shorter distances.



GMFCS Level IV

Children use methods of mobility that require physical assistance or powered mobility in most settings. They may walk for short distances at home with physical assistance or use powered mobility or a body support walker when positioned. At school, outdoors and in the community children are transported in a manual wheelchair or use powered mobility.



GMFCS Level V

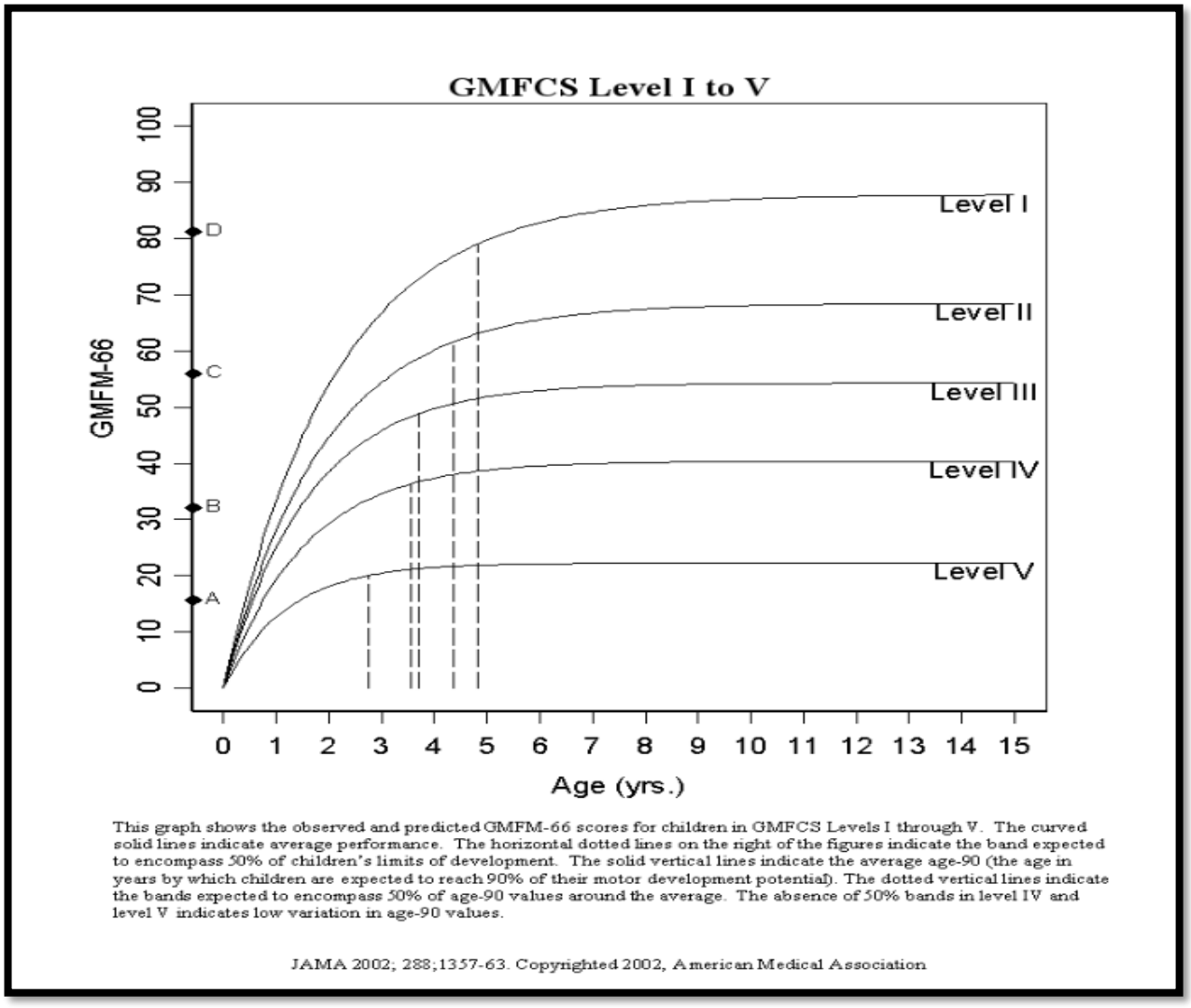
Children are transported in a manual wheelchair in all settings. Children are limited in their ability to maintain antigravity head and trunk postures and control leg and arm movements.

GMFCS descriptors: Palisano et al. (1997) Dev Med Child Neurol 39:214-23
CanChild: www.canchild.ca

Motor Growth Curves for Cerebral Palsy

Trajectories for Gross Motor Development

The Motor Growth Curves report patterns of gross motor development in children with cerebral palsy, classified according to each of the **five levels of the Gross Motor Function Classification System (GMFCS)** (Palisano et al., 1997). Children in this study were followed longitudinally for several years.



This graph shows the observed and predicted GMFM-66 scores for children in GMFCS Levels I through V. The curved solid lines indicate average performance. The horizontal dotted lines on the right of the figures indicate the band expected to encompass 50% of children's limits of development. The solid vertical lines indicate the average age-90 (the age in years by which children are expected to reach 90% of their motor development potential). The dotted vertical lines indicate the bands expected to encompass 50% of age-90 values around the average. The absence of 50% bands in level IV and level V indicates low variation in age-90 values.

Reference: Prognosis for Gross Motor Development in Cerebral Palsy. Creation of Motor Growth Curves', Rosenbaum et al., JAMA 2002; 288; 1357-63.

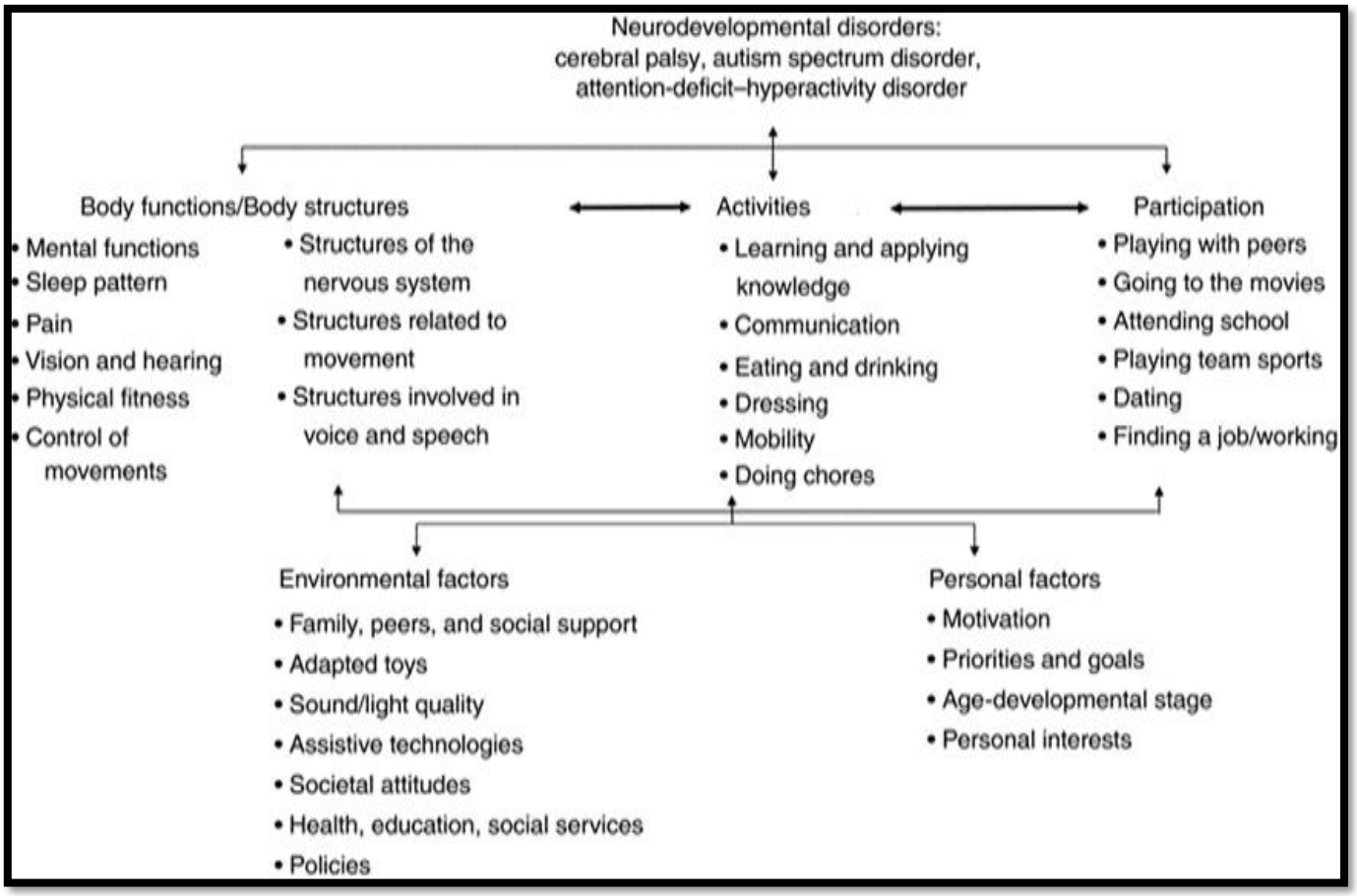
CHAPTER 4
ASSESSMENT OF THE CHILD WITH MOTOR IMPAIRMENT

1. Specific Physiotherapy Assessment
2. Range of Motion Assessment in Cerebral Palsy
3. OUTCOME MEASURES:

The GMFM**:** The Gross Motor Function Measure
The WeeFIM: The Functional Independence Measure

Specific Physiotherapy Assessment

The *International Classification of Functioning, Disability, and Health (ICF)* provides a framework for assessment of **body functions and structures**, **activities**, and **participation** of children with disabilities in the context of **personal and environmental factors.**



ICF-BASED ASSESSMENT

Body functions and Structures (Impairments)
Muscle tone and extensibility
Muscle Strength
Selective Motor Control
Range of Motion, torsion of long bones, hip displacement, joint instability
Spinal alignment
Postural Control: Equilibrium and righting reactions, protective extension reactions
Endurance, Fatigue
Cardio-vascular
Pain

Activities and Participation (Limitations and Restrictions)
Gross Motor Skills, Fine Motor Skills
Functional Mobility and participation: indoors, school, community
Self-care Skills
Play

Contextual Factors

Environmental factors (Barriers or Facilitators)
Physical environment, uses of assistive devices, walking aids, adaptations
Social environment
Attitudinal environment

Personal Factors
Motivation
Personal interests, likes, dislikes
Goals and priorities
Age, sex, race,
Socioeconomic factors
Education

Lower Extremity ROM Testing in Cerebral Palsy

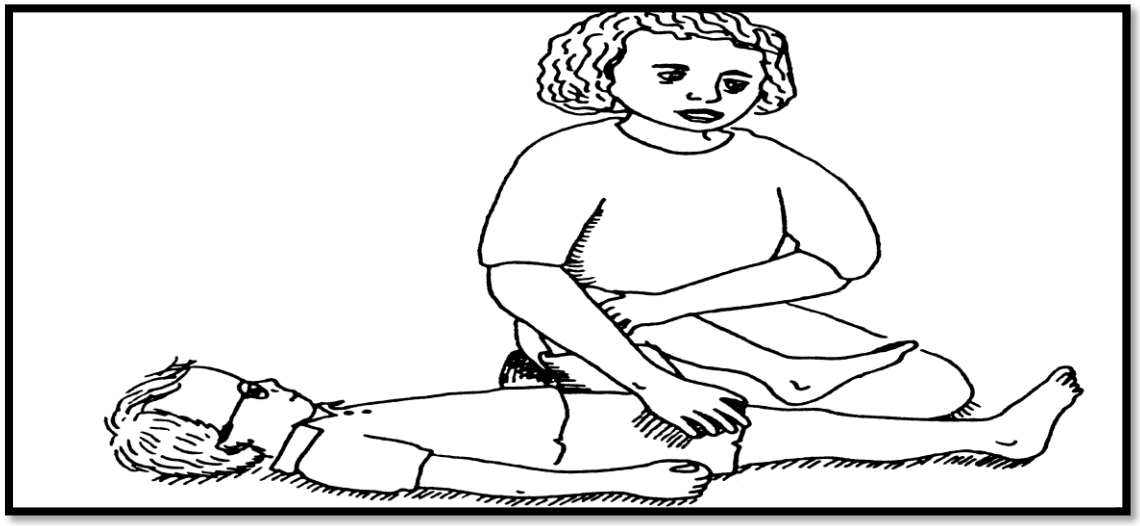
Lower Extremities:	Left	Right
Hip Extension:		
Hip Abduction(in flexion):		
Hip Abduction (in extension) (I/M):		
Hip External Rotation (prone) Hip Internal Rotation (prone):		
Hamstrings: Popliteal Angle: (I/M)		
SLR: I/M		
Ankle Dorsiflexion:		
Knee extended (I/M)		
Knee flexed (I/M)		

NOTE:

I: ***Initial ROM at 'catch' of rapid stretch of spastic muscles***

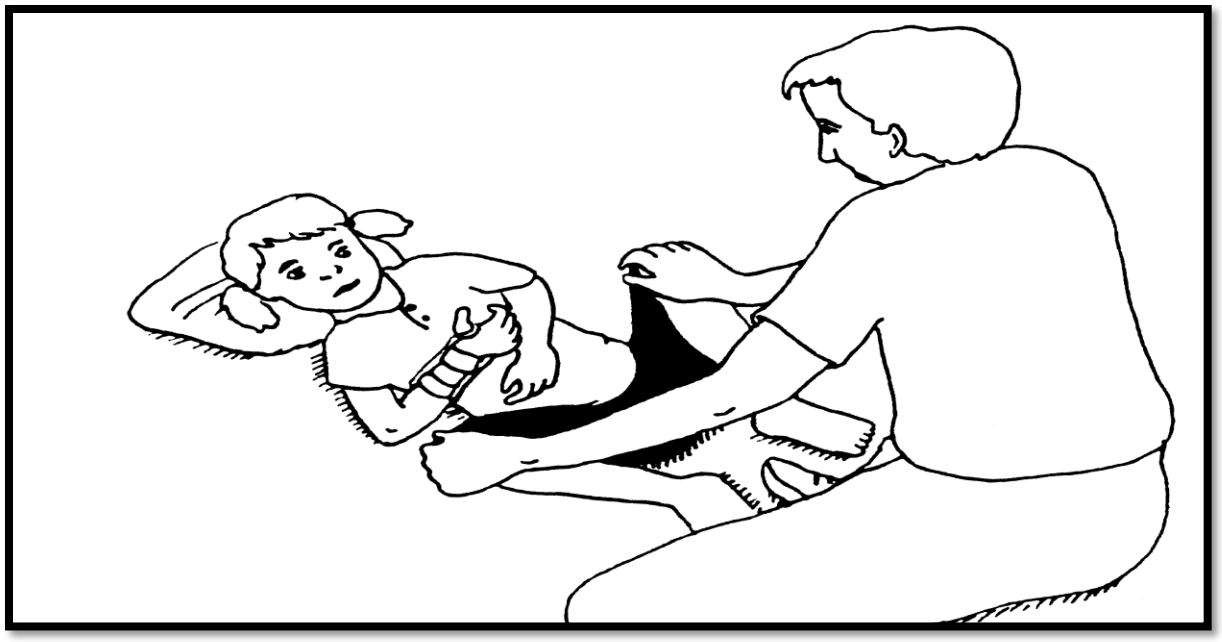
M: ***Maximal ROM following slow stretch of spastic muscles***

Testing of Hip Flexor Length (Thomas Test)



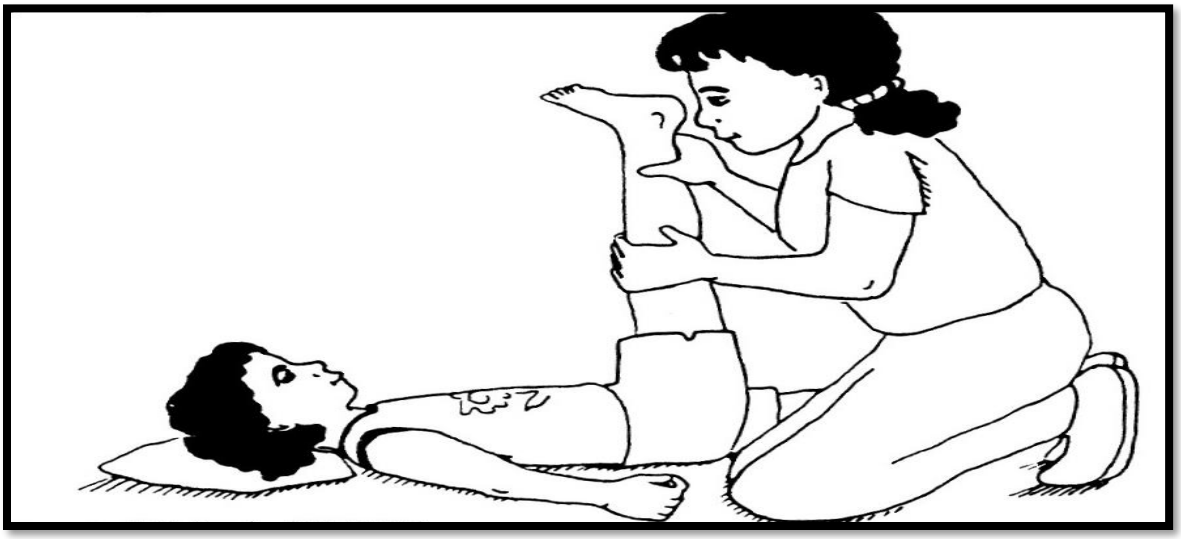
Testing of Hip Adductor Muscle Length (with hips in flexion)

Also tested with **hips in extension**



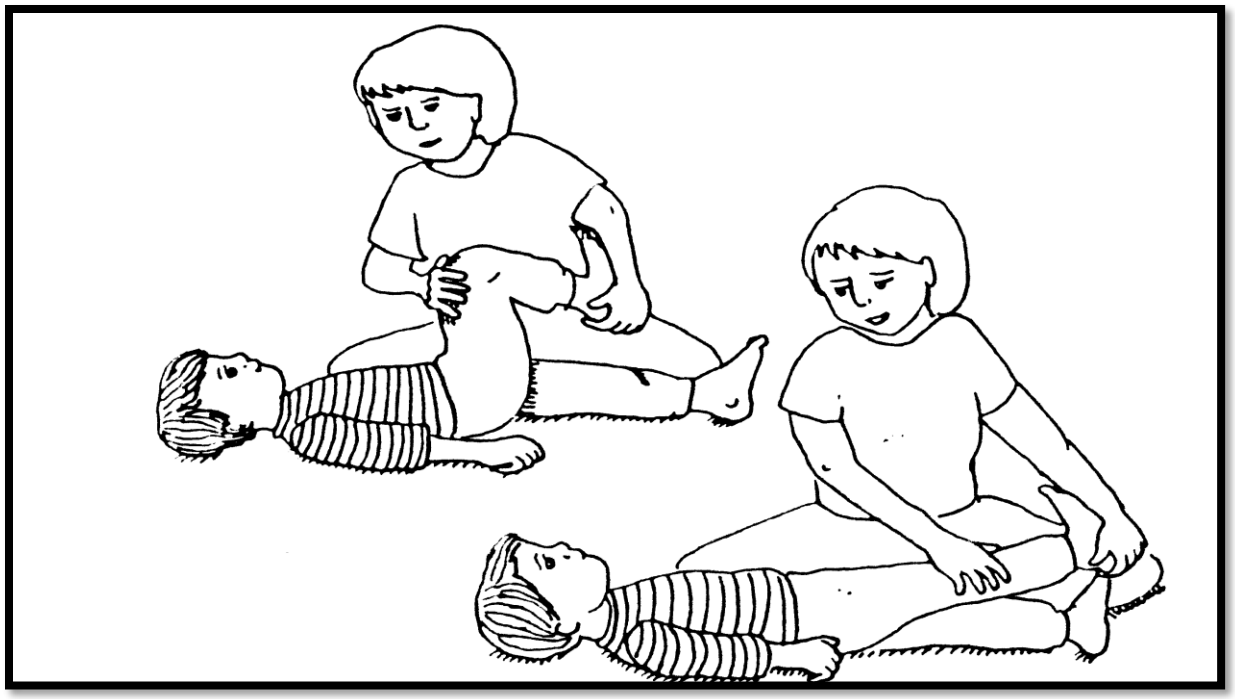
Testing of Hamstring Muscle Length (Straight Leg Raising)

May also be tested using the **popliteal angle (with hip at 90°)**



Testing of Gastro-soleus Muscle Length

Knee flexed (soleus) and knee extended (gastrocnemius)



GROSS MOTOR FUNCTION MEASURE (GMFM)
SCORE SHEET (GMFM-88 and GMFM-66 scoring)

Child's Name: _____ ID#: _____

Assessment Date: _____ (year / month / day)

GMFCS Level[1]:

☐ I ☐ II ☐ III ☐ IV ☐ V

Date of Birth: _____ (year / month / day)

Chronological Age: _____ (year / month / day)

Evaluator's Name: _____

Testing Condition (e.g., room, clothing, time, others present):

_____

The GMFM is a standardized observational instrument designed and validated to measure change in gross motor function over time in children with cerebral palsy. The scoring key is meant to be a general guideline. However, most of the items have specific descriptors for each score. It is imperative that the guidelines contained in the manual be used for scoring each item.

SCORING KEY

0 = does not initiate
1 = initiates
2 = partially completes
3 = completes
9 (or leave blank) = not tested (NT) [used for the GMAE-2 scoring*]

It is important to differentiate a true score of "0" (child does not initiate) from an item which is Not Tested (NT) if you are interested in using the GMFM-66 Ability Estimator (GMAE) Software.

*The GMAE-2 software is available for downloading from www.canchild.ca for those who have purchased the GMFM manual. The GMFM-66 is only valid for use with children who have cerebral palsy.

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CanChild
Centre for Childhood Disability Research

[1]GMFCS level is a rating of severity of motor function. Definitions for the GMFCS-E&R (expanded & revised) are found in Palisano et al. (2008). Developmental Medicine & Child Neurology. 50:744-750 and in the GMAE-2 scoring software. http://motorgrowth.canchild.ca/en/GMFCS/resources/GMFCS-ER.pdf

Check (3) the appropriate score: if an item is not tested (NT), circle the item number on the right column

	Item	A: LYING & ROLLING	SCORE				NT
	1.	SUP, HEAD IN MIDLINE: TURNS HEAD WITH EXTREMITIES SYMMETRICAL	0☐	1☐	2☐	3☐	1.
*	2.	SUP: BRINGS HANDS TO MIDLINE, FINGERS ONE WITH THE OTHER	0☐	1☐	2☐	3☐	2.
	3.	SUP: LIFTS HEAD 45°	0☐	1☐	2☐	3☐	3.
	4.	SUP: FLEXES R HIP & KNEE THROUGH FULL RANGE	0☐	1☐	2☐	3☐	4.
	5.	SUP: FLEXES L HIP & KNEE THROUGH FULL RANGE	0☐	1☐	2☐	3☐	5.
*	6.	SUP: REACHES OUT WITH R ARM, HAND CROSSES MIDLINE TOWARD TOY	0☐	1☐	2☐	3☐	6.
*	7.	SUP: REACHES OUT WITH L ARM, HAND CROSSES MIDLINE TOWARD TOY	0☐	1☐	2☐	3☐	7.
	8.	SUP: ROLLS TO PR OVER R SIDE	0☐	1☐	2☐	3☐	8.
	9.	SUP: ROLLS TO PR OVER L SIDE	0☐	1☐	2☐	3☐	9.
*	10.	PR: LIFTS HEAD UPRIGHT	0☐	1☐	2☐	3☐	10.
	11.	PR ON FOREARMS: LIFTS HEAD UPRIGHT, ELBOWS EXT., CHEST RAISED	0☐	1☐	2☐	3☐	11.
	12.	PR ON FOREARMS: WEIGHT ON R FOREARM, FULLY EXTENDS OPPOSITE ARM FORWARD	0☐	1☐	2☐	3☐	12.
	13.	PR ON FOREARMS: WEIGHT ON L FOREARM, FULLY EXTENDS OPPOSITE ARM FORWARD	0☐	1☐	2☐	3☐	13.
	14.	PR: ROLLS TO SUP OVER R SIDE	0☐	1☐	2☐	3☐	14.
	15.	PR: ROLLS TO SUP OVER L SIDE	0☐	1☐	2☐	3☐	15.
	16.	PR: PIVOTS TO R 90° USING EXTREMITIES	0☐	1☐	2☐	3☐	16.
	17.	PR: PIVOTS TO L 90° USING EXTREMITIES	0☐	1☐	2☐	3☐	17.
		TOTAL DIMENSION A					

	Item	B: SITTING	SCORE				NT
*	18.	SUP, HANDS GRASPED BY EXAMINER: PULLS SELF TO SITTING WITH HEAD CONTROL	0☐	1☐	2☐	3☐	18.
	19.	SUP: ROLLS TO R SIDE, ATTAINS SITTING	0☐	1☐	2☐	3☐	19.
	20.	SUP: ROLLS TO L SIDE, ATTAINS SITTING	0☐	1☐	2☐	3☐	20.
*	21.	SIT ON MAT, SUPPORTED AT THORAX BY THERAPIST: LIFTS HEAD UPRIGHT, MAINTAINS 3 SECONDS	0☐	1☐	2☐	3☐	21.
*	22.	SIT ON MAT, SUPPORTED AT THORAX BY THERAPIST: LIFTS HEAD MIDLINE, MAINTAINS 10 SECONDS	0☐	1☐	2☐	3☐	22.
*	23.	SIT ON MAT, ARM(S) PROPPING: MAINTAINS, 5 SECONDS	0☐	1☐	2☐	3☐	23.
*	24.	SIT ON MAT: MAINTAIN, ARMS FREE, 3 SECONDS	0☐	1☐	2☐	3☐	24.
*	25.	SIT ON MAT WITH SMALL TOY IN FRONT: LEANS FORWARD, TOUCHESTOY, RE-ERECTS WITHOUT ARM PROPPING	0☐	1☐	2☐	3☐	25.
*	26.	SIT ON MAT: TOUCHES TOY PLACED 45° BEHIND CHILD'S R SIDE, RETURNS TO START	0☐	1☐	2☐	3☐	26.
*	27.	SIT ON MAT: TOUCHES TOY PLACED 45° BEHIND CHILD'S L SIDE, RETURNS TO START	0☐	1☐	2☐	3☐	27.
	28.	R SIDE SIT: MAINTAINS, ARMS FREE, 5 SECONDS	0☐	1☐	2☐	3☐	28.
	29.	L SIDE SIT: MAINTAINS, ARMS FREE, 5 SECONDS	0☐	1☐	2☐	3☐	29.
*	30.	SIT ON MAT: LOWERS TO PR WITH CONTROL	0☐	1☐	2☐	3☐	30.
*	31.	SIT ON MAT WITH FEET IN FRONT: ATTAINS 4 POINT OVER R SIDE	0☐	1☐	2☐	3☐	31.
*	32.	SIT ON MAT WITH FEET IN FRONT: ATTAINS 4 POINT OVER L SIDE	0☐	1☐	2☐	3☐	32.
	33.	SIT ON MAT: PIVOTS 90°, WITHOUT ARMS ASSISTING	0☐	1☐	2☐	3☐	33.
*	34.	SIT ON BENCH: MAINTAINS, ARMS AND FEET FREE, 10 SECONDS	0☐	1☐	2☐	3☐	34.
*	35.	STD: ATTAINS SIT ON SMALL BENCH	0☐	1☐	2☐	3☐	35.
*	36.	ON THE FLOOR: ATTAINS SIT ON SMALL BENCH	0☐	1☐	2☐	3☐	36.
*	37.	ON THE FLOOR: ATTAINS SIT ON LARGE BENCH	0☐	1☐	2☐	3☐	37.
		TOTAL DIMENSION B					

	Item	C: CRAWLING & KNEELING	SCORE				NT
	38.	PR: CREEPS FORWARD 1.8m (6')	0☐	1☐	2☐	3☐	38.
*	39.	4 POINT: MAINTAINS, WEIGHT ON HANDS AND KNEES, 10 SECONDS	0☐	1☐	2☐	3☐	39.
*	40.	4 POINT: ATTAINS SIT ARMS FREE	0☐	1☐	2☐	3☐	40.
*	41.	PR: ATTAINS 4 POINT, WEIGHT ON HANDS AND KNEES	0☐	1☐	2☐	3☐	41.
*	42.	4 POINT: REACHES FORWARD WITH R ARM, HAND ABOVE SHOULDER LEVEL	0☐	1☐	2☐	3☐	42.
*	43.	4 POINT: REACHES FORWARD WITH L ARM, HAND ABOVE SHOULDER LEVEL	0☐	1☐	2☐	3☐	43.
*	44.	4 POINT: CRAWLS OR HITCHES FORWARD 1.8m(6')	0☐	1☐	2☐	3☐	44.
*	45.	4 POINT: CRAWLS RECIPROCALLY FORWARD1.8m (6')	0☐	1☐	2☐	3☐	45.
*	46.	4 POINT: CRAWLS UP 4 STEPS ON HANDS AND KNEES/FEET	0☐	1☐	2☐	3☐	46.
	47.	4 POINT: CRAWLS BACKWARDS DOWN 4 STEPS ON HANDS AND KNEES/FEET	0☐	1☐	2☐	3☐	47.
*	48.	SIT ON MAT: ATTAINS HIGH KN USING ARMS, MAINTAINS, ARMS FREE, 10 SECONDS	0☐	1☐	2☐	3☐	48.
	49.	HIGH KN: ATTAINS HALF KN ON R KNEE USING ARMS, MAINTAINS, ARMS FREE, 10 SECONDS	0☐	1☐	2☐	3☐	49.
	50.	HIGH KN: ATTAINS HALF KN ON L KNEE USING ARMS, MAINTAINS, ARMS FREE, 10 SECONDS	0☐	1☐	2☐	3☐	50.
*	51.	HIGH KN: KN WALKS FORWARD 10 STEPS, ARMS FREE	0☐	1☐	2☐	3☐	51.

TOTAL DIMENSION C ☐

	Item	D: STANDING	SCORE				NT
*	52.	ON THE FLOOR: PULLS TO STD AT LARGE BENCH	0☐	1☐	2☐	3☐	52.
*	53.	STD: MAINTAINS, ARMS FREE, 3 SECONDS	0☐	1☐	2☐	3☐	53.
*	54.	STD: HOLDING ON TO LARGE BENCH WITH ONE HAND, LIFTS R FOOT, 3 SECONDS	0☐	1☐	2☐	3☐	54.
*	55.	STD: HOLDING ON TO LARGE BENCH WITH ONE HAND, LIFTS L FOOT, 3 SECONDS	0☐	1☐	2☐	3☐	55.
*	56.	STD: MAINTAINS, ARMS FREE, 20 SECONDS	0☐	1☐	2☐	3☐	56.
*	57.	STD: LIFTS L FOOT, ARMS FREE, 10 SECONDS	0☐	1☐	2☐	3☐	57.
*	58.	STD: LIFTS R FOOT, ARMS FREE, 10 SECONDS	0☐	1☐	2☐	3☐	58.
*	59.	SIT ON SMALL BENCH: ATTAINS STD WITHOUT USING ARMS	0☐	1☐	2☐	3☐	59.
*	60.	HIGH KN: ATTAINS STD THROUGH HALF KN ON R KNEE, WITHOUT USING ARMS	0☐	1☐	2☐	3☐	60.
*	61.	HIGH KN: ATTAINS STD THROUGH HALF KN ON L KNEE, WITHOUT USING ARMS	0☐	1☐	2☐	3☐	61.
*	62.	STD: LOWERS TO SIT ON FLOOR WITH CONTROL, ARMS FREE	0☐	1☐	2☐	3☐	62.
*	63.	STD: ATTAINS SQUAT, ARMS FREE	0☐	1☐	2☐	3☐	63.
*	64.	STD: PICKS UP OBJECT FROM FLOOR, ARMS FREE, RETURNS TO STAND	0☐	1☐	2☐	3☐	64.

TOTAL DIMENSION D ☐

Item		E: WALKING, RUNNING & JUMPING	SCORE				NT
*	65.	STD, 2 HANDS ON LARGE BENCH: CRUISES 5 STEPS TO R	0☐	1☐	2☐	3☐	65.
*	66.	STD, 2 HANDS ON LARGE BENCH: CRUISES 5 STEPS TO L	0☐	1☐	2☐	3☐	66.
*	67.	STD, 2 HANDS HELD: WALKS FORWARD 10 STEPS	0☐	1☐	2☐	3☐	67.
*	68.	STD, 1 HAND HELD: WALKS FORWARD 10 STEPS	0☐	1☐	2☐	3☐	68.
*	69.	STD: WALKS FORWARD 10 STEPS	0☐	1☐	2☐	3☐	69.
*	70.	STD: WALKS FORWARD 10 STEPS, STOPS, TURNS 180°, RETURNS	0☐	1☐	2☐	3☐	70.
*	71.	STD: WALKS BACKWARD 10 STEPS	0☐	1☐	2☐	3☐	71.
*	72.	STD: WALKS FORWARD 10 STEPS, CARRYING A LARGE OBJECT WITH 2 HANDS	0☐	1☐	2☐	3☐	72.
*	73.	STD: WALKS FORWARD 10 CONSECUTIVE STEPS BETWEEN PARALLEL LINES 20cm (8")APART	0☐	1☐	2☐	3☐	73.
*	74.	STD: WALKS FORWARD 10 CONSECUTIVE STEPS ON A STRAIGHT LINE 2cm (3/4") WIDE	0☐	1☐	2☐	3☐	74.
*	75.	STD: STEPS OVER STICK AT KNEE LEVEL, R FOOT LEADING	0☐	1☐	2☐	3☐	75.
*	76.	STD: STEPS OVER STICK AT KNEE LEVEL, L FOOT LEADING	0☐	1☐	2☐	3☐	76.
*	77.	STD: RUNS 4.5m (15'), STOPS & RETURNS	0☐	1☐	2☐	3☐	77.
*	78.	STD: KICKS BALL WITH R FOOT	0☐	1☐	2☐	3☐	78.
*	79.	STD: KICKS BALL WITH L FOOT	0☐	1☐	2☐	3☐	79.
*	80.	STD: JUMPS 30cm (12") HIGH, BOTH FEET SIMULTANEOUSLY	0☐	1☐	2☐	3☐	80.
*	81.	STD: JUMPS FORWARD 30 cm (12"), BOTH FEET SIMULTANEOUSLY	0☐	1☐	2☐	3☐	81.
*	82.	STD ON R FOOT: HOPS ON R FOOT 10 TIMES WITHIN A 60cm (24") CIRCLE	0☐	1☐	2☐	3☐	82.
*	83.	STD ON L FOOT: HOPS ON L FOOT 10 TIMES WITHIN A 60cm (24") CIRCLE	0☐	1☐	2☐	3☐	83.
*	84.	STD, HOLDING 1 RAIL: WALKS UP 4 STEPS, HOLDING 1 RAIL, ALTERNATING FEET	0☐	1☐	2☐	3☐	84.
*	85.	STD, HOLDING 1 RAIL: WALKS DOWN 4 STEPS, HOLDING 1 RAIL, ALTERNATING FEET	0☐	1☐	2☐	3☐	85.
*	86.	STD: WALKS UP 4 STEPS, ALTERNATING FEET	0☐	1☐	2☐	3☐	86.
*	87.	STD: WALKS DOWN 4 STEPS, ALTERNATING FEET	0☐	1☐	2☐	3☐	87.
*	88.	STD ON 15cm (6") STEP: JUMPS OFF, BOTH FEET SIMULTANEOUSLY	0☐	1☐	2☐	3☐	88.

TOTAL DIMENSION E ☐

Was this assessment indicative of this child's "regular" performance? YES ☐ NO ☐
COMMENTS:

GMFM-88 SUMMARY SCORE

DIMENSION	CALCULATION OF DIMENSION % SCORES	GOAL AREA (indicated with ✓ check)
A. Lying & Rolling	$\frac{\text{Total Dimension A}}{51} = \frac{\quad}{51} \times 100 = \quad\%$	A. ☐
B. Sitting	$\frac{\text{Total Dimension B}}{60} = \frac{\quad}{60} \times 100 = \quad\%$	B. ☐
C. Crawling & Kneeling	$\frac{\text{Total Dimension C}}{42} = \frac{\quad}{42} \times 100 = \quad\%$	C. ☐
D. Standing	$\frac{\text{Total Dimension D}}{39} = \frac{\quad}{39} \times 100 = \quad\%$	D. ☐
E. Walking, Running & Jumping	$\frac{\text{Total Dimension E}}{72} = \frac{\quad}{72} \times 100 = \quad\%$	E. ☐

TOTAL SCORE = $\frac{\%A + \%B + \%C + \%D + \%E}{\text{Total \# of Dimensions}}$

$= \frac{\quad}{5} = \quad = \quad\%$

GOAL TOTAL SCORE = $\frac{\text{Sum of \%scores for each dimension identified as a goal area}}{\text{\# of Goal areas}}$

$= \quad = \quad\%$

GMFM-66 Gross Motor Ability Estimator Score [1]

GMFM-66 Score = _____ _____ to _____ 95% Confidence Intervals

previous GMFM-66 Score = _____ _____ to _____ 95% Confidence Intervals

change in GMFM-66 = _____

[1] from the Gross Motor Ability Estimator (GMAE-2) Software

The WeeFIM- Functional Independence Measure for Children

The WeeFIM instrument is a standardized and internationally validated assessment, evaluates children's functional performance for children from the aged of 6 months to 12 years. It has been shown to be most useful to determine the level of developmental disability in child between the ages of 2 and 5 (Msall et al., 1994).

The WeeFIM has a total of **18 items** divided within **3 domains:**

1. **Self-care:** self-care, sphincter control (8 items)
2. **Mobility:** transfers, locomotion (5 items)
3. **Cognitive:** communication, social cognition (5 items)

Self-Care	Mobility	Cognitive
• Eating • Grooming • Bathing • Dressing-upper body • Dressing-lower body • Toileting • Bladder management • Bowel management	• Transfer: chair, wheelchair • Transfer: toilet • Transfer: tub, shower • Locomotion: Walk Wheelchair Crawl • Stairs	**Communication**: • Comprehension • Expression **Social Cognition** • Social Interaction • Problem Solving • Memory

General Level Descriptions for the WeeFIM

The WeeFIM instrument is rated on a **seven-level ordinal scale**.
The maximum rating of 7 on this scale represents complete independence, and the minimum rating of 1 represents total assistance.

→ Refer to *detailed description of scale* (next page)

No Helper: The child performs all tasks without assistance from another person.

7 **Complete Independence:** The child safely performs all the tasks described as making up the activity without assistance from a helper, within a reasonable amount of time, and without modification, assistive devices, or aids.

6 **Modified Independence:** The child performs all tasks without assistance from a helper, and one or more of the following are true:

- The child requires an assistive device or aid to perform the tasks.
- The child requires a prosthesis or an orthosis that is necessary for performing the tasks.
- The child takes more than a reasonable amount of time to perform the tasks.
- There is a concern for the child's safety when he performs the tasks.

Helper: The child requires another person (whether for supervision or physical assistance) to perform the tasks, **or** the child does not perform the tasks.

Modified Dependence: The child performs 50% or more of the tasks.

5 **Supervision/Setup:** The child performs all the tasks but requires either supervision (standby supervision, cues, or coaxing) without physical contact or setup assistance (e.g., setting up necessary items or helping to apply an assistive/adaptive device, a prosthesis, or an orthosis).

4 **Minimal Assistance:** The child performs 75% or more of the tasks, requiring no more help than touching.

3 **Moderate Assistance:** The child performs 50% to 74% of the tasks, requiring physical assistance beyond touching.

Complete Dependence: The child performs less than 50% of the tasks, requiring maximal or total assistance from a helper, or does not perform the activity.

2 **Maximal Assistance:** The child performs 25% to 49% of the tasks.

1 **Total Assistance:** One or more of the following are true:

- The child performs less than 25% of the tasks (includes nonperformance of tasks).
- The child requires assistance from two helpers to perform the tasks.
- The activity does not occur.

Other References:

https://en.hesperian.org/hhg/Disabled_Village_Children:Chapter_4:_Examining_and_Evaluating_the_Disabled_Child

https://en.hesperian.org/hhg/Disabled_Village_Children:Examining_the_Disabled_Child

https://en.hesperian.org/hhg/Disabled_Village_Children:Testing_Range_of_Motion_of_Joints_and_Strength_of_Muscles

https://en.hesperian.org/hhg/Disabled_Village_Children:Examining_the_Child_for_Contractures

https://en.hesperian.org/hhg/Disabled_Village_Children:Examining_The_Nervous_System

CHAPTER 5

PHYSIOTHERAPY APPROACHES FOR CHILDREN WITH DEVELOPMENTAL DISABILITIES

1. Planning Interventions For Children with Developmental Disabilities

- Family-centered and relationship-focused services
- Address child and family priorities and information needs
- Effective communication and coordination with other service providers
- Goal-focused
  - Meaningful to and set collaboratively with child and family
  - Achievable
  - Revisited regularly
- Individualized intervention plans
- Attention to relationships among body functions and structures, activities and participation within the context of personal and environmental factors
- Management of health and co-morbidities
- Prevention of secondary impairment or functional deterioration
- Goal-related activities as follows:
  - Age and developmentally appropriate
  - Active rather than passive
  - Functional
  - Fun and motivating
  - Challenging
- Incorporate motor learning strategies
  - Problem solving
  - Task specificity
  - Active trial and error
  - High-frequency of practice
  - Self-correction, exploration
  - Learning and practice in real-life environments
  - Compensations, task modifications, or environmental adaptations to accommodate a child
  - Life span approach

2. Family-Centred Goal Setting: The COPM

The COPM is a personalized **semi-structured interview** designed to identify **important daily life problems** experienced by the child and family.

It is an **open conversation with the family** on issues of importance to them. The therapist asks the parents about their child's **activities of daily routine** or **everyday living** including mobility, self-care, play and leisure.

A **family-centered approach is used** in discussing the **child's functional daily activities with parent/caregiver.**

The Parent is asked to think of *a Typical Day with their Child:*

- WHAT the child wants to do
- WHAT the child is starting to do
- WHAT the child needs to do or is required to do
- WHAT the child is expected to do but is unable to accomplish
- WHAT the parent wants their child to do

COPM Goals should be:

- Problems of high importance for parent/caregiver/child
- Developmentally appropriate
- Achievable within the next 6 months to 1 year
- Involve functional everyday activities or participation
- May relate to different therapeutic disciplines

Important Steps of the COPM Process:

- Parents identify daily problems
- Score the importance of each functional problem
- Rate their child's current performance
- Rate their satisfaction with their child's ability

COPM
Canadian Occupational Performance Measure

The **Canadian Occupational Performance Measure (COPM)** supports high-quality, client-centred, occupation-based practice. The COPM is an individualized measure designed to detect change in a client's self-perception of occupational performance over time. The COPM is intended for use as an outcome measure. As such, it should be administered at the beginning of service to support the establishment of intervention goals, and again at an appropriate interval thereafter to determine progress and outcome.

The COPM is used to:

- identify problem areas in occupational performance;
- provide a rating of the client's priorities in occupational performance;
- evaluate performance and satisfaction relative to those problem areas;
- provide the basis for goal-setting; and,
- measure changes in a client's perception of his/her performance and satisfaction over the course of intervention.

The COPM is completed in 5 steps

1. Identify occupational performance problems. The definition of a problem is:

   An occupation that a person WANTS TO DO, NEEDS TO DO or IS EXPECTED TO DO, but CAN'T DO, DOESN'T DO or ISN'T SATISFIED WITH THE WAY he or she DOES IT.
2. Once specific occupational performance problems have been identified, ask the client to rate each one in terms of its IMPORTANCE in his or her life. Importance is rated on a ten-point scale, where:

   1 = not important at all, 10 = extremely important
3. Ask the client to choose up to five problems that seem most pressing or important, using the ratings just done.
4. Rate: PERFORMANCE (How would you rate the way you do this activity now?) and SATISFACTION (How satisfied are you with the way you do this activity now?)
5. Establish date for re-assessment.

Occupational Performance Areas

SELF-CARE

Self-care includes occupations aimed at getting ready for the day and getting around. In the COPM, we measure three aspects of self-care: personal care, functional mobility, and community management.

	IMPORTANCE
Personal care:	
Functional mobility:	
Community management:	

PRODUCTIVITY

Productivity includes occupations aimed at earning a living, maintaining home and family, providing service to others and/or developing one's capabilities. The COPM measures three types of productive activity: paid or unpaid work, household management, and school/play.

Paid or unpaid work:	
Household management:	
School and/or play:	

LEISURE

Leisure includes the occupations performed by an individual when freed from the obligation to be productive. The COPM includes quiet recreation, active recreation, and socialization.

Quiet recreation:	
Active recreation:	
Socialization:	

Scoring

PERFORMANCE (How would you rate the way you do this activity now?)

1 = not able to do it at all ⟷ 10 = able to do it extremely well

SATISFACTION (How satisfied are you with the way you do this activity now?)

1 = not satisfied at all ⟷ 10 = extremely satisfied

TIME 1: ____/____/____ TIME 2: ____/____/____

Occupational Performance Problem (OPP)	Imp.	Performance T_1	Satisfaction T_1	Performance T_2	Satisfaction T_2	Change in Performance (T_2-T_1)	Change in Satisfaction (T_2-T_1)
1.							
2.							
3.							
4.							
5.							
Total Score (Σ=1+2+3+4+5)							
Average Score (Σ/number of OPPs)							

IMPORTANCE

1	2	3	4	5	6	7	8	9	10
not important at all									extremely important

PERFORMANCE

1	2	3	4	5	6	7	8	9	10
not able to do it at all								able to do it extremely well	

SATISFACTION

1	2	3	4	5	6	7	8	9	10
not satisfied at all									extremely satisfied

3. The Role of Physiotherapy in the Intervention of Children with Developmental Disabilities

1) Facilitate all aspects of development, with focus on motor skills

→ Goal-oriented motor training
Motor facilitation approaches

2) Ensure optimal positioning and handling to promote development

→ Parent/caregiver education
Adaptive supportive devices

3) Provide an enriched environment

→ Parent/caregiver coaching on developmental stimulation

4) Encourage function and participation:

→ Developmentally-appropriate activities and play
Assistive Devices, mobility aids, orthotics
Environmental modifications (home, school, community)

4. Maintaining/Improving Muscle Length in Cerebral Palsy

- Spasticity causes abnormal **muscle tightness**. ROM of joints may still be near normal. Muscle tightness and joint stiffness can be stretched or elongated.
- Over time, fixed shortening of the muscles will develop, along with reduced ROM of joints. The limb cannot be stretched even if the muscles relax. Those are **contractures**.

Stretching Muscle Tightness and Joint Stiffness

- SLOW PROGRESSIVE STRETCH, held for a minimum of 30 seconds
- NEVER stretch a spastic muscle quickly!
- PROLONGED STRETCH by using positioning, such as using adaptive corner seat or long leg sitting back against wall to stretch hamstrings for 15-30 minutes, few times/day.
- ACTIVE STRETCH combined with strengthening of opposing muscle groups such as sit-to-stand practice (stretches hip flexors (iliopsoas) and knee flexors (hamstrings) and strengthen hip extensors (gluteal) and knee extensors (quadriceps).
- Use of orthotics, calipers, night splinting.
- Use of a standing frame for 45 minutes

The Evidence for Management of Muscle Contractures

- Casting, orthotics and/or surgery works (Novak, 2013)
- Using a stander works for ankle, knee, hip ROM (Paleg, 2013)
- Night splinting for 6 hours works for soleus (Tardieu, 1988)
- 30, 60, 90m second stretches do not work on contractures (Katalinic, 2011)
- PROLONGED muscle elongation through proper positioning is NEEDED

Guidelines for Exercises: Range of Motion, Stretching, Strengthening

References

https://en.hesperian.org/hhg/Disabled_Village_Children:Chapter_42:_Range-of-Motion_and_Other_Exercises

https://en.hesperian.org/hhg/Disabled_Village_Children:Different_Exercises_for_Different_Needs

https://en.hesperian.org/hhg/Disabled_Village_Children:Range-of-Motion_(Rom)_Exercises

https://en.hesperian.org/hhg/Disabled_Village_Children:Guidelines_for_Doing_Stretching_and_Range-of-Motion_Exercises

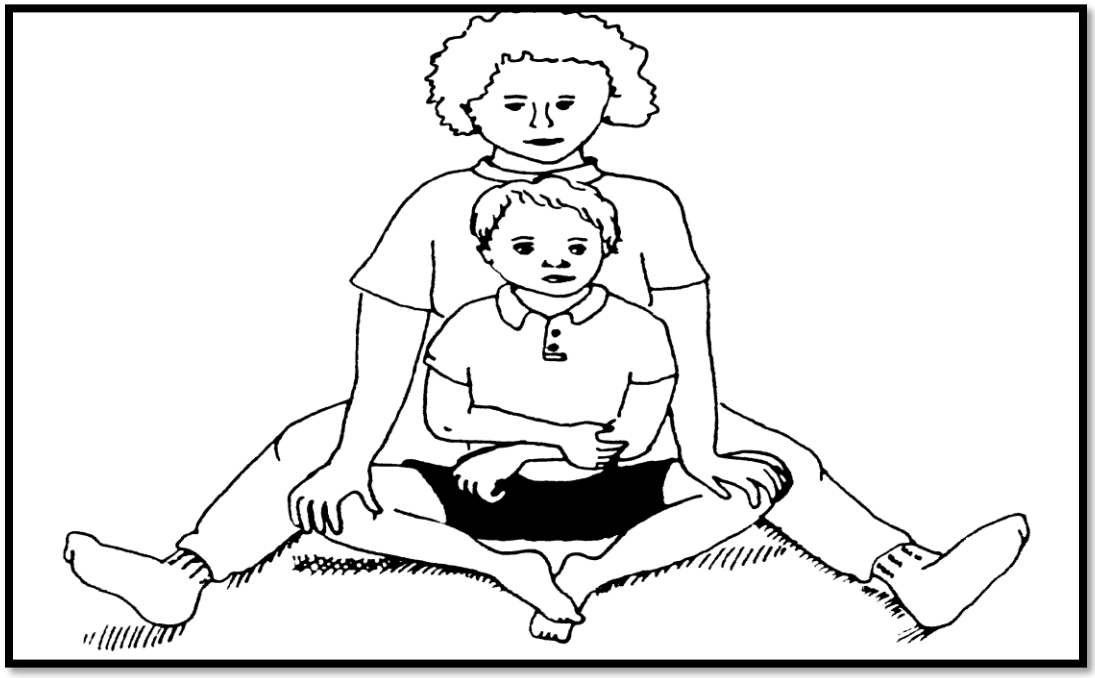
https://en.hesperian.org/hhg/Disabled_Village_Children:Common_Sense_Precautions_When_Doing_Exercises

https://en.hesperian.org/hhg/Disabled_Village_Children:Preventing_Contractures

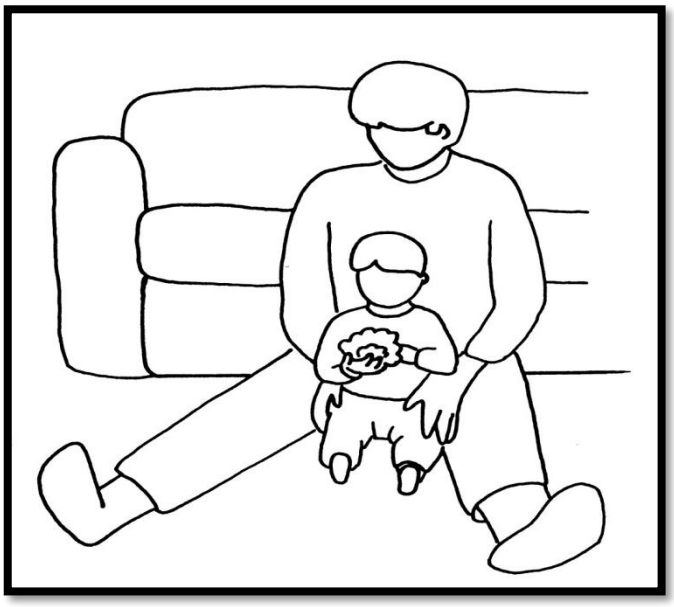
https://en.hesperian.org/hhg/Disabled_Village_Children:Chapter_59:_Correcting_Joint_Contractures

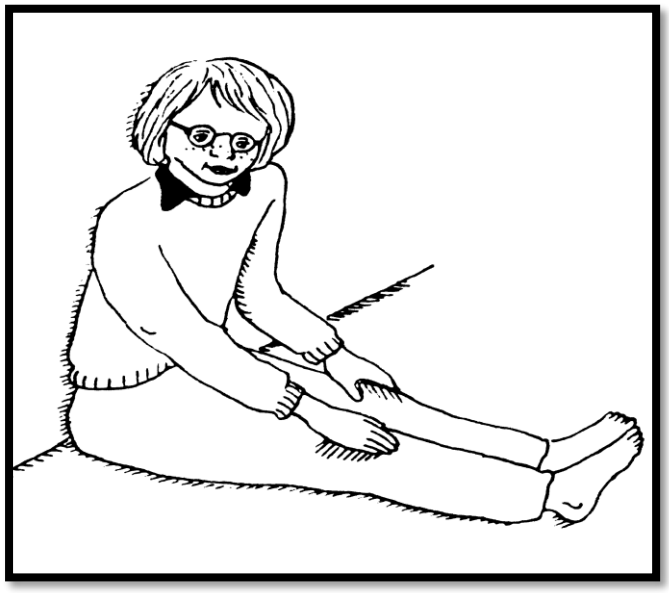
http://en.hesperian.org/hhg/Disabled_Village_Children:Exercise_Instruction_Sheets%E2%80%94for_Giving_to_Parents

Stretching hip adductors and internal rotators



Stretching hamstrings (with adult behind and self-stretching)





CHAPTER 6

THERAPEUTIC INTERVENTIONS

FOR GROSS MOTOR DEVELOPMENT

1. **SUPINE AND PRONE**
Developing head and anti-gravity control in supine and prone
Tummy Time Strategies
Floor mobility: rolling, pivoting, creeping

2. **SITTING**
Training sitting balance and facilitating transitions in/out of sitting

3. **FOUR-POINT, CRAWLING AND KNEELING**
Training 4-point kneeling, crawling, and kneeling

4. **STANDING WITH SUPPORT**
Training standing with support
Transitions in/out of standing

5. **INDEPENDENT STANDING AND WALKING**
Training independent standing balance
Training side-stepping (cruising) and walking with/without environmental support

6. **ADVANCED SKILLS IN STANDING**
Training balance and coordination (GMFCS Levels I and II)

7. **UPPER EXTREMITY AND FINE MOTOR SKILLS INTERVENTION**

Reference:

Positioning for Play: Home Activities for Parents of Young Children
Rachel B. Diamant M.S., OTR.
Therapy Skill Builders, 1992

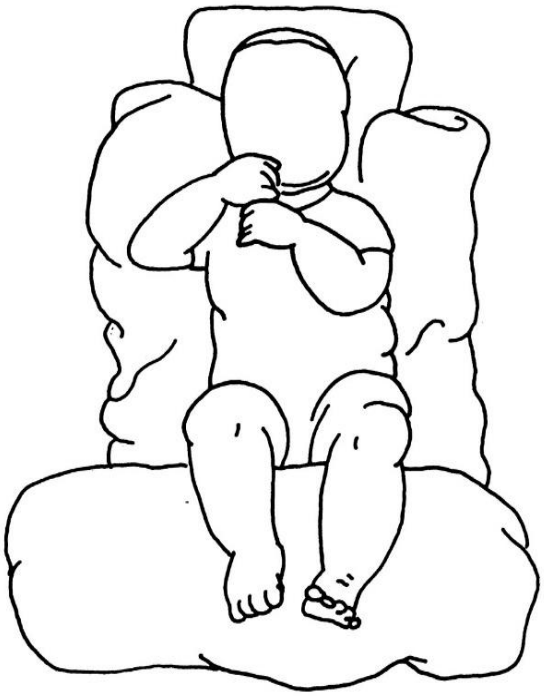
1. SUPINE AND PRONE DEVELOPMENT

- **Developing head and anti-gravity control in supine:**
  Key elements:
  Development of flexor control
  Midline orientation

- **Developing head and anti-gravity control in prone:**
  Key elements:
  Development of extensor control (head, trunk, lower limbs)
  Upper limb weight bearing

SUPINE

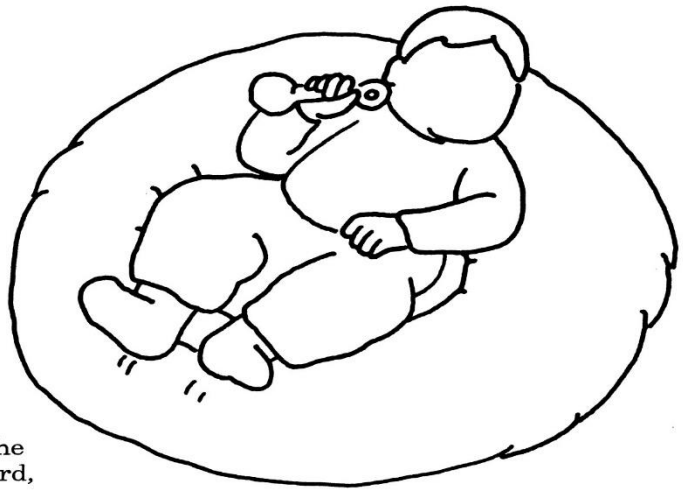
Child Lying on Back, Propped with Towels



Lay the child face-up with a small, folded towel supporting the child's head. Roll two medium-sized towels lengthwise; place a towel under each of the child's shoulders and tuck the towels snugly along each side of the child's body. Fold a large towel and tuck it under the child's legs to keep hips and knees bent. Bring the child's shoulders down, arms forward and down, hands together.

SUPINE

Child Lying on Back in an Inner Tube or a Swim Ring

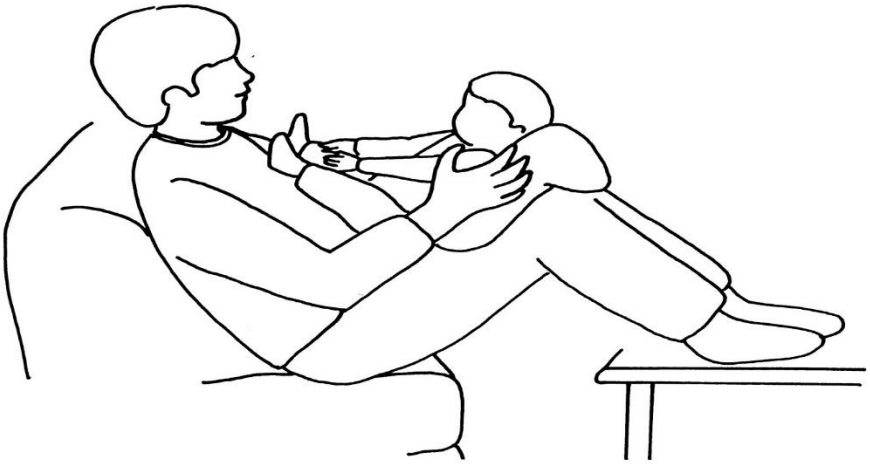


Lay the child face-up inside an inner tube, with the child's head supported on the rim of the tube. Bend the child's hips and place the legs on the rim of the tube. Bring the child's shoulders down, arms forward, and hands together.

Child Lying on Back with Legs Straight, in front of You

Sit on the floor or a bed with your legs outstretched, your back supported against furniture or pillows. Lay the child in front of you, between your legs, facing you. Make sure the child's bottom is up against your body as closely as possible. Support the child's head on a pillow to keep the child's chin tucked and the head in line with the body. Place the child's legs up against your chest and stomach. The child's hips should be bent, knees straight, and legs together. Place one of your hands across the child's thighs and keep the knees straight by pressing the child's legs against your body. Bring the child's arms down and forward with hands together.

Child on Your Lap

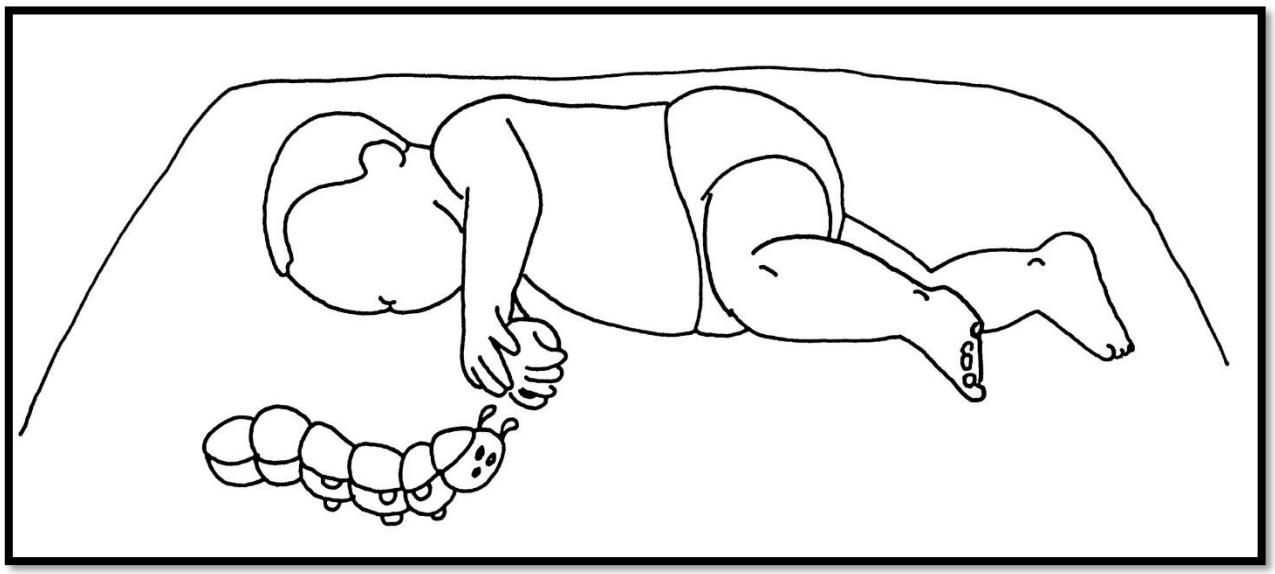


Sit on a couch or an easy chair, and rest your feet on a coffee table or a stool with your knees slightly bent. Lay the child on your lap, facing you. Support the child's head on a pillow to help keep the child's chin tucked and the head in line with the body. Make sure the child's bottom is up against your waist as closely as possible, then rest the child's legs up on your chest. The child's legs should be together, with hips bent. Hold the child's hands or shoulders to keep the child's arms forward.

Child Lifting Hips and Legs

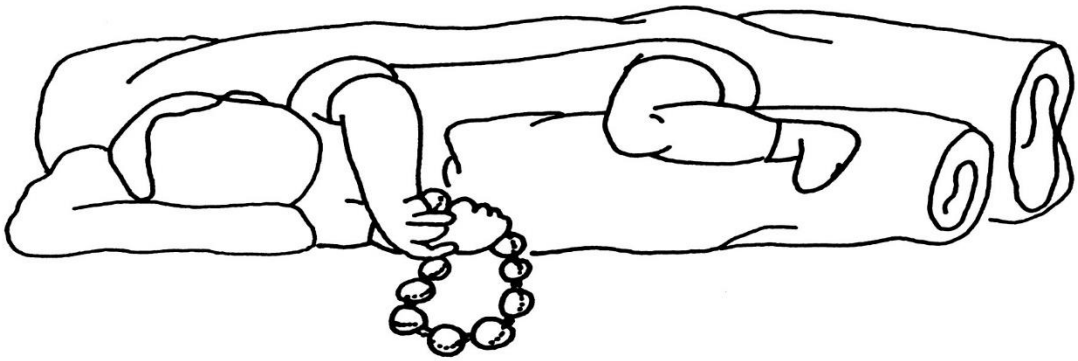
Kneel-sit or sit cross-legged on the floor or a bed. Lay the child face-up in front of you. Support the child's head on a small pillow or a folded towel. Help the child lift the legs by placing your hands under the child's bottom. Slowly lift the child's bottom up a few inches. Encourage the child to reach for knees or feet. If the child needs more help, place a small folded towel under the child's bottom, then hold the child's thighs as you bring knees toward hands.

Positioning and Play in Side-Lying



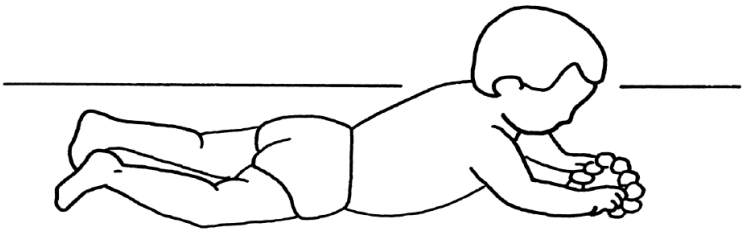
SIDELYING

Child Lying on Side, Propped with Towels



Put the child side-down on a mattress or the floor. Place a long bumper pad or a large, rolled-up towel snugly against the child's back. (The rolled towel should be longer than the child.) Put a small pillow or a folded towel under the child's head. Place a medium-sized rolled towel along the child's chest, stomach, and bottom leg, making sure the bottom leg is straight. Bend the knee and the hip of the upper leg and rest the leg on top of the towel. Bring the child's arms forward in front of the child's body.

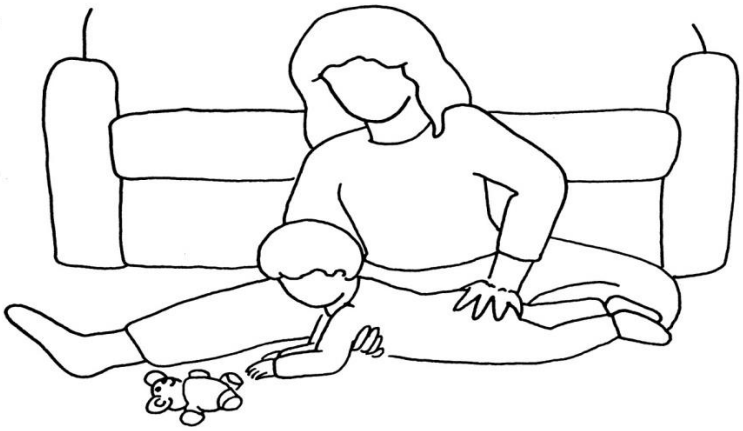
Developing anti-gravity control In Prone



Child Lying on Your Chest

Support your head on a pillow as you lie on your back. Put the child on your chest facing you. Support the child's chest with your hands to help the child prop up on elbows. When child can prop up on elbows, support the child's bottom with your hands to help child learn to lift chest.

Child Lying on Stomach, Supported by Your Hands



Sit on the floor, and support your back up against a couch. Lay the child face-down in front of you. Put one of your hands on the child's bottom, and put your other hand under the child's body, across the chest. Make sure the child's arms and hands are forward, in front of the child's shoulders. Help the child learn to push up on elbows or on straight arms by gently lifting the child's chest with your hand. Keep the child's bottom down and flat with your other hand.

Child Lying on Stomach, Propped with a Towel

FIGURE A

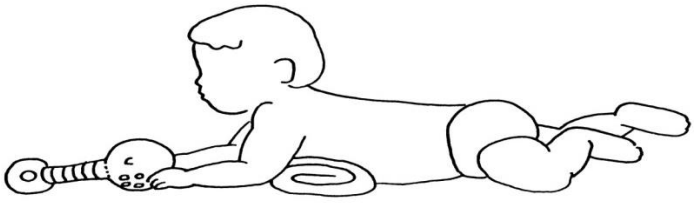
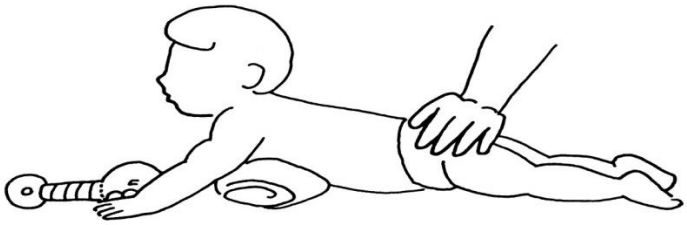


FIGURE B



Roll up a medium-sized towel lengthwise and place it under the child's chest for support. Bring the child's arms forward in front of the towel (fig. A). If the child needs more help to push up on elbows or hands, place your hand on the child's bottom and gently push downward (fig. B).

Child Reaching for Toys While Lying on Stomach

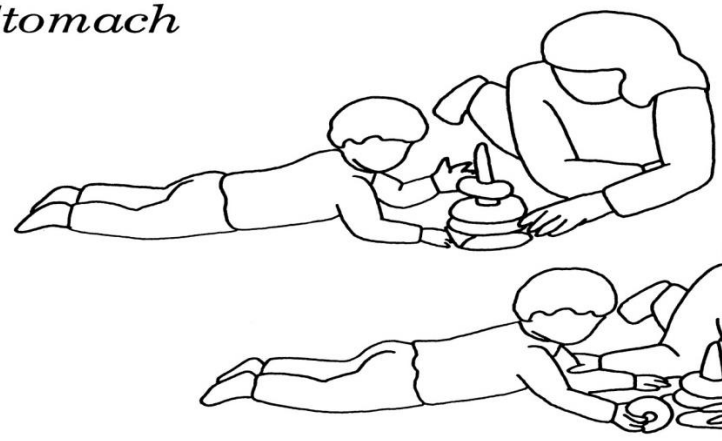
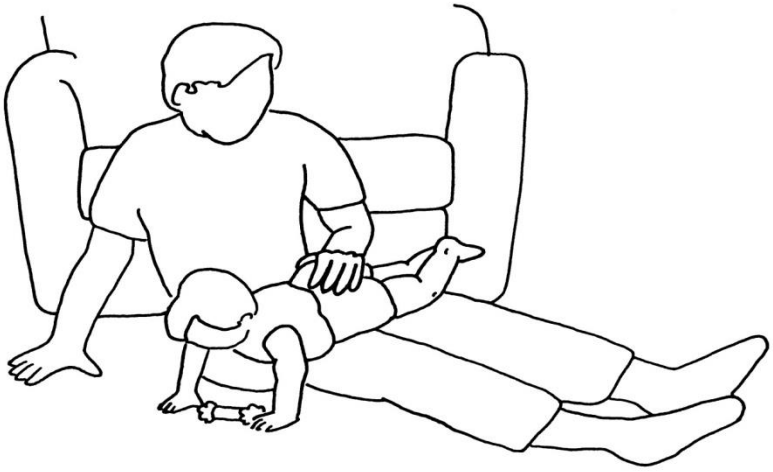


FIGURE A

FIGURE B

Put the child face-down on the floor and lie on the floor next to the child. Make sure the child's arms are forward, with the elbows under or slightly in front of the shoulders. Place toys in front and slightly to the side of the child. Encourage the child to reach for the toys with one arm while leaning on the opposite arm (fig. A). If the arm that the child is leaning on tends to collapse, you may need to support the child's shoulder, arm, or elbow with one of your hands (fig. B).

Child Lying across Your Lap



Sit on the floor or a couch, and support your back against the furniture. Lay the child face-down across your lap. Bring the child's arms forward and place them on the floor or couch cushions. Place your hand on the child's bottom to keep the child from rolling off your lap. Gently bounce or rock your legs to encourage the child to lift the head or push up with the arms.

Tummy Time-5 Essential Moves (www.pathways.org)

https://pathways.org/watch/five-essential-tummy-time-moves-how-to-do-tummy-time/

Babies must be on *"back to sleep, tummy to play"* as part of daily routine.

Tummy to Tummy

Lie down on the floor or a bed, flat or propped up on pillows. Place your baby on your chest or tummy so that you're face-to-face. Always hold firmly for safety.

Eye-Level Smile

Get down level with your baby to encourage eye contact. Roll up and place a blanket under the chest and upper arms for added support.

Lap Soothe

Place your baby face-down across your lap to burp or soothe them. A hand on your baby's bottom will help them feel steady and calm.

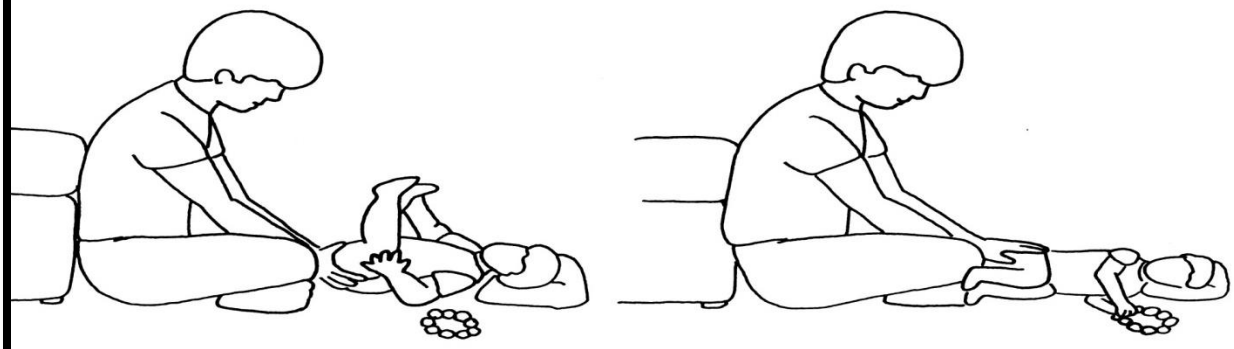
Tummy-Down Carry

Slide one hand under the tummy and between the legs when carrying baby tummy down. Nestle your baby close to your body.

Tummy Minute

Place your baby on their tummy for one or two minutes every time you change them. Start a few minutes at a time and try to work up to an hour a day in short intervals by the end of three months. Don't get discouraged. Every bit of Tummy Time makes a difference!

Child Learning to Roll from Back to Side



Kneel-sit or sit cross-legged on the floor or a bed. Lay the child face-up in front of your legs. Support the child's head with a small pillow or a folded towel. Make sure that the child's arms are down, hands on stomach, and that the legs are bent and together. Place your hands under the child's bottom, lift the child's bottom up an inch, then roll the child's bottom to one side. The child's body and arms should follow. Then roll the child to the other side.

Child Learning to Roll from Back to Stomach

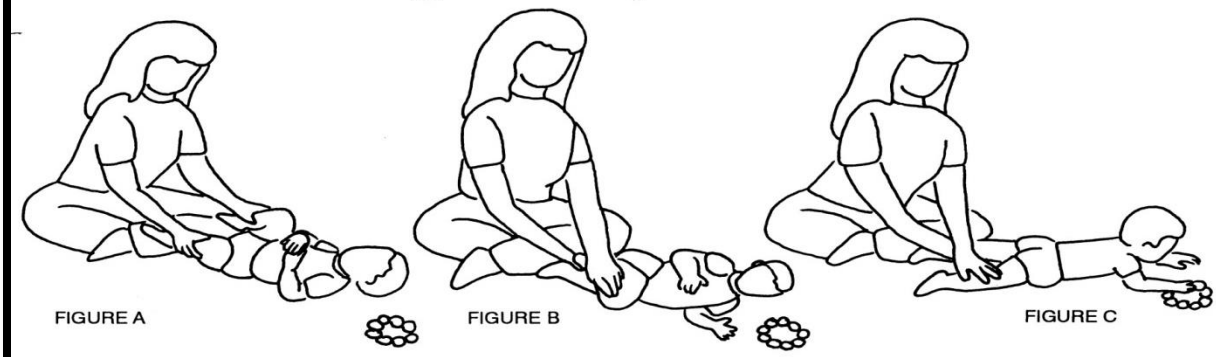


FIGURE A FIGURE B FIGURE C

Kneel-sit or sit cross-legged on the floor or a bed, and lay the child face-up in front of your legs. Make sure that the child's head is in line with the body and that the arms are down, with hands on stomach. To help the child roll, hold the child's legs below the knee and bend one leg up while keeping the other leg straight (fig. A). Slowly bring the bent leg across the body to roll the hips to the side (fig. B). Then straighten the bent leg to bring the hips and stomach down flat onto the floor or bed. The child's upper body should roll over to follow the movement of the hips. Let the child bring the arms out from under the body independently (help the child if necessary by lifting up the shoulder of the arm that is stuck) (fig. C). Allow the child to play face-down for a little while, then return the child to a face-up position and roll in the other direction.

2. SITTING

Training Sitting Balance and facilitating transitions in/out of sitting

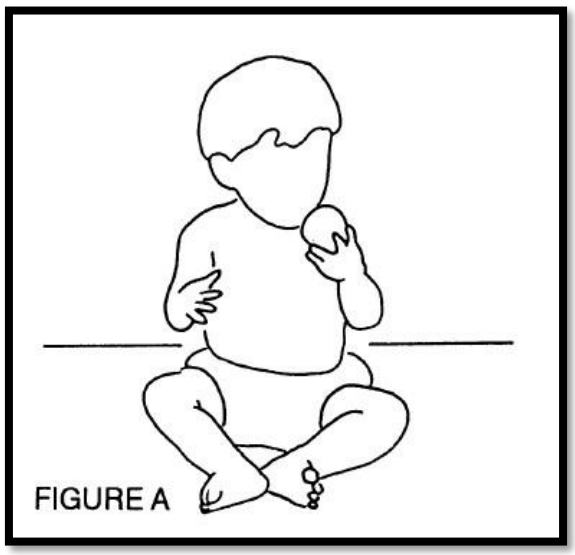


FIGURE A

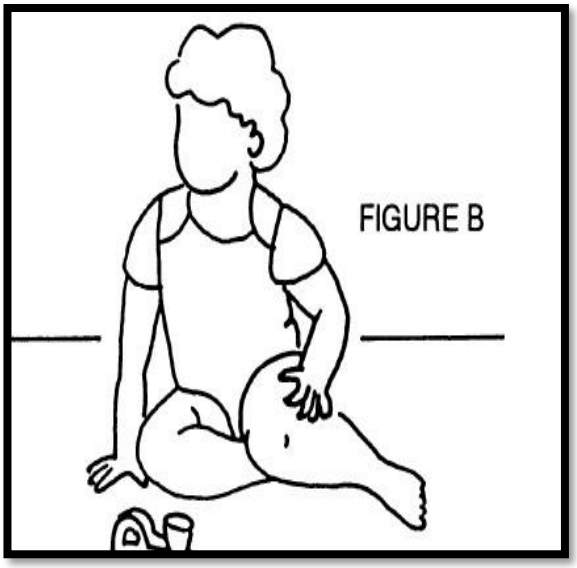


FIGURE B

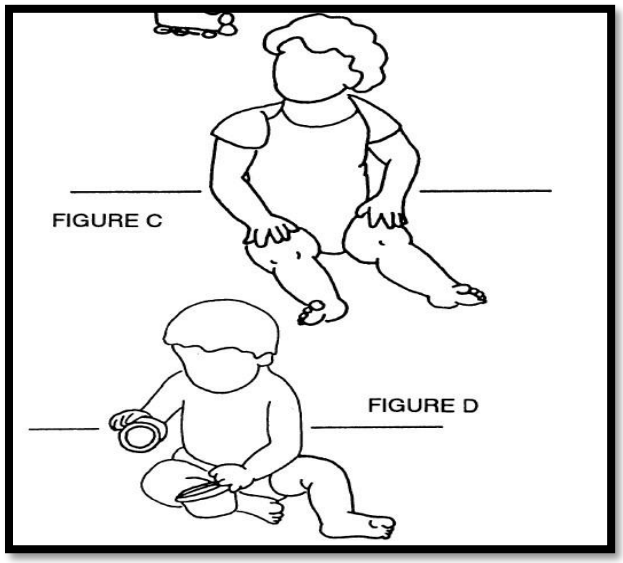


FIGURE C

FIGURE D

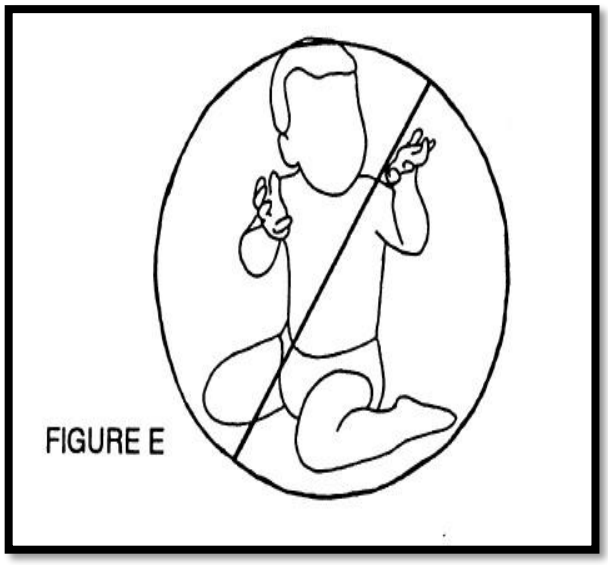
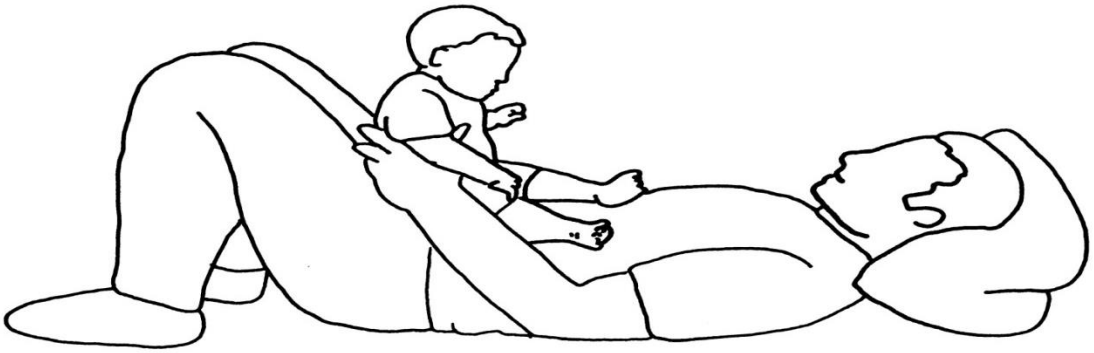


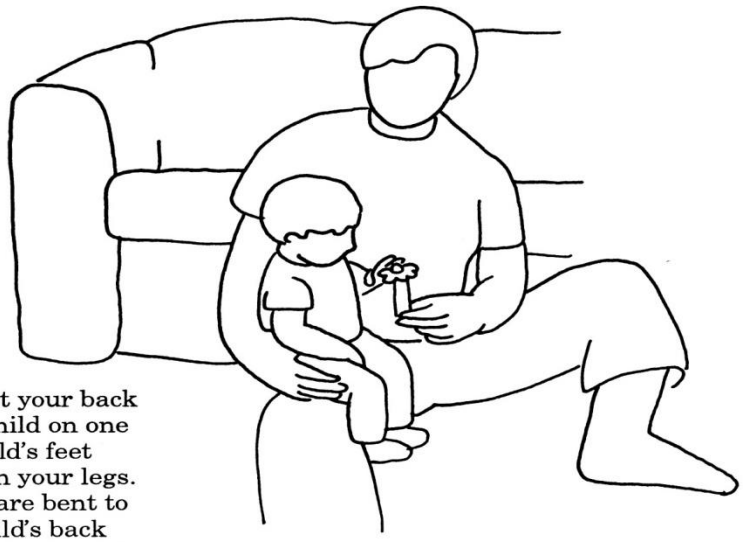
FIGURE E

Child Sitting on Your Stomach



Lie face-up on the floor or a bed with your hips and knees bent, and support your head on a pillow. Seat the child on your stomach, facing you. Make sure the child's hips and back are up against your thighs and the child's hips are bent to 90 degrees. Help the child balance by holding the child's hips and sides for support. Make sure the child's arms and legs are forward.

Child Sitting on Your Leg While You Are Sitting on the Floor

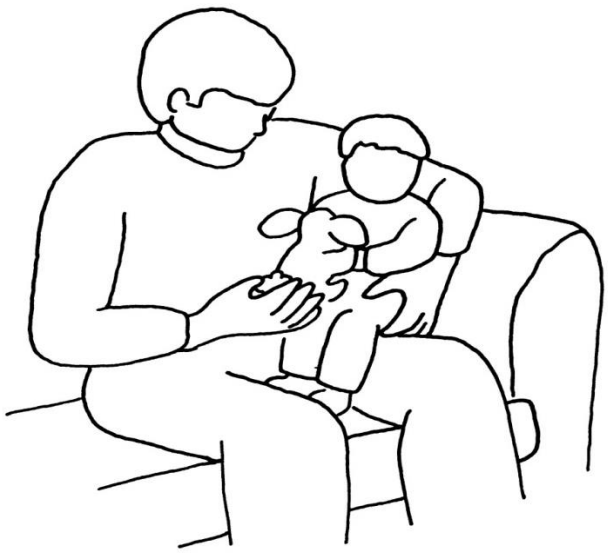


Sit on the floor, and support your back against a couch. Seat the child on one of your thighs, with the child's feet resting on the floor between your legs. Make sure the child's hips are bent to 90 degrees. Support the child's back and hips with your arm. Hold the child close to you. Make sure the child's arms are forward.

Child Sitting on Your Lap with Your Legs Crossed

Sit on the floor with your legs crossed, and support your back against a couch. Seat the child on your lap, making sure the child's bottom and back are up against your body as closely as possible. This will help keep the child's back straight and hips bent. Put the child's legs over your legs, and bend the child's knees so that the feet are flat on the floor. Make sure the child's shoulders are down and arms are forward. If the child tends to let the head fall backward or pushes the head backward, or if the child's body tends to fall forward, use one of your hands to support the child's chest to keep the head and body upright.

Child Sitting on Your Lap While You Are Sitting on a Couch or a Chair

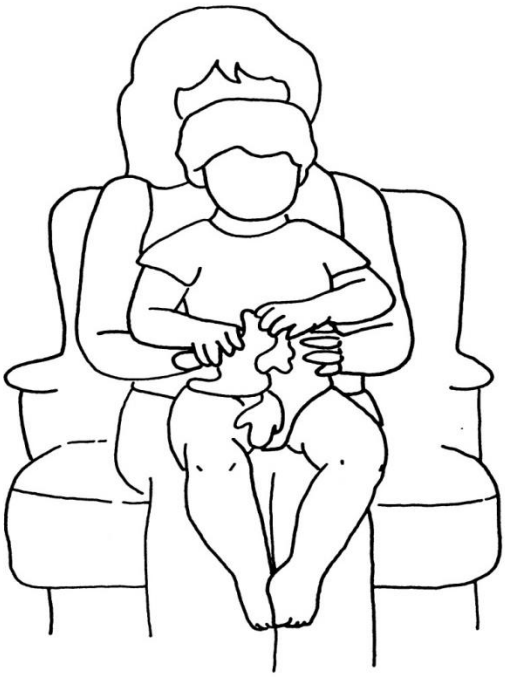


Sit on a couch, seat the child on one of your thighs, and put the child's feet flat on the couch cushion between your legs. Make sure the child's hips are bent to 90 degrees. Support the child's head and back with one of your arms. The child's shoulders should be down with arms forward.

Child Sitting on Your Lap, Supported at the Shoulders

Sit on a couch or a chair, and seat the child on your lap. Make sure the child's hips and back are up against your stomach and that the child's hips are bent at 90 degrees, with legs forward and together. With the child's shoulders in your hands, gently bring the child's shoulders back against your body. Use your chest to support the child's back. The child's arms should be forward and down.

Child Sitting on Your Lap, Supported at the Ribs



Sit on a couch or a chair, and seat the child on your lap. Make sure the child's hips are up against your stomach and that they are bent to 90 degrees with legs forward and together. Use your hands on the child's ribs to keep the child's body straight and directly over the hips. The child's arms should be forward and down.

Child Sitting on Your Lap, Supported at the Hips

Sit on a couch or a chair, and seat the child on your lap. Make sure the child's hips and back are up against your stomach and that they are bent to 90 degrees with legs forward and together. Hold the child's hips, and use your body to support the child's back and keep it straight. The child's arms should be forward and down.

Child Sitting on Your Lap While You Are Sitting on a Chair at a Table

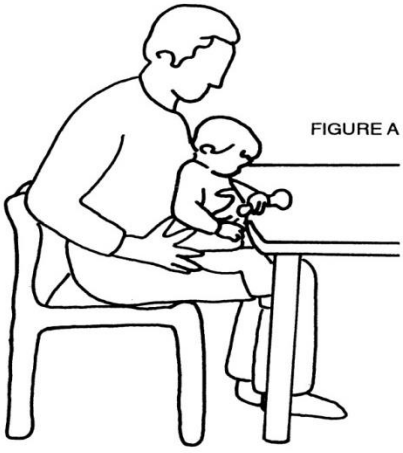


FIGURE A

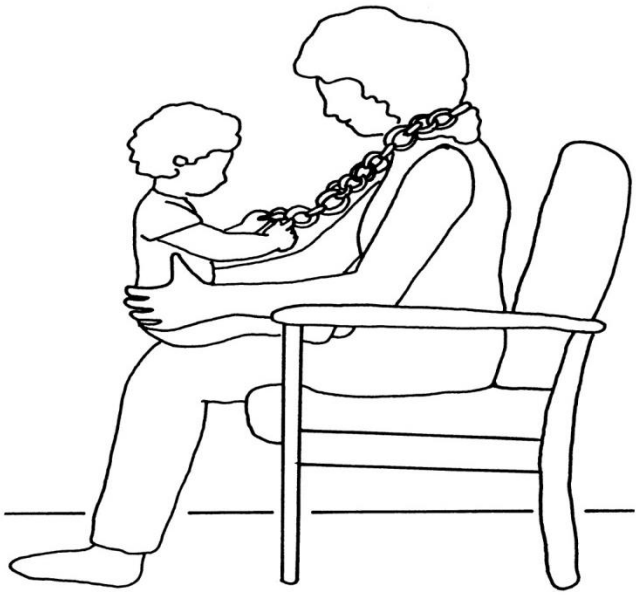
FIGURE B

Seat the child on your lap. Make sure the child's hips and back are up against your stomach with hips bent to 90 degrees and legs forward and together. Hold the child's hips with your hands. Support the child's back and keep it straight with your body. If necessary, support the child's chest with one of your hands to keep the child's body upright. Position yourself and the child close to a table. Bring the child's arms forward onto the table.

Child Sitting in a Chair with You, Playing a Sensory Game

Sit in an easy chair, and seat the child on your lap or on the chair cushion between your legs. Make sure child's hips and back are up against your body, the child's hips at 90 degrees with legs forward and together. Use your body to support the child's back and keep it straight. Place a toy on the child's lap, then bring the child's arms forward and down. You can hold the child's arms, wrists, or hands to help the child feel the toy.

Child Sitting on Your Lap, Facing You

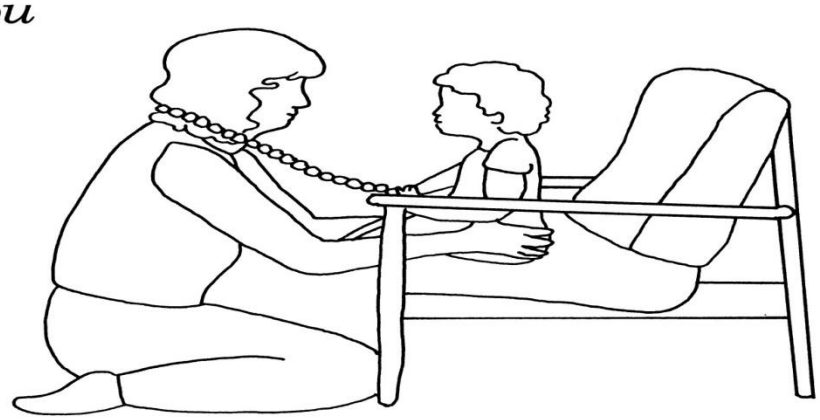


Sit on a couch or a chair, and seat the child on your lap, facing you. To keep the child's hips bent to 90 degrees and the back straight, support the child's hips with your hands and the child's sides with your thumbs. Hold hips upright. Make sure the child's legs are forward and together. (If the child has long legs, the legs can straddle your waist.) The child's arms should be forward.

Child Sitting on a Table, Facing You

Sit on a chair in front of a table, and seat the child on the table, facing you. Keep the child's back straight and the hips bent to 90 degrees by supporting the child's hips with your hands and the child's sides with your thumbs. Hold hips upright. Make sure the child's legs are forward and together. The child's knees can be bent over the edge of the table. The child's arms should be forward and down.

Child Sitting on a Chair or a Couch, Facing You



Sit on a stool or kneel-sit in front of a chair or a couch. Seat the child on the chair or couch facing you. Keep the child's back straight and the hips bent to 90 degrees by supporting the child's hips with your hands and the child's sides with your thumbs. Hold hips upright so that the child does not sit on the tailbone. Make sure the child's legs are forward and together. The child's knees can be bent over the edge of the cushion or can be straight with legs on top of the cushion. The child's arms should be forward and down.

Child Balancing on Your Lap

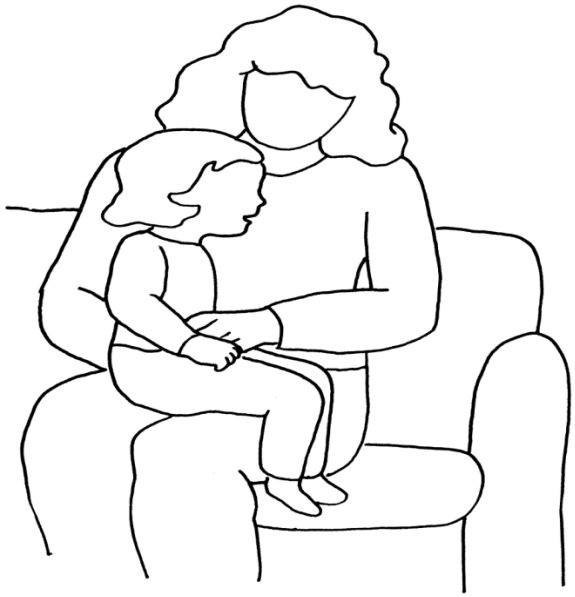
FIGURE A

FIGURE B

Sit on a couch or a chair, and seat the child on your lap, facing away from you. Hold the child's hips and keep them bent to 90 degrees, with legs forward. Lean your body against the back of the couch or the chair, away from the child's body. Make sure the child's back is straight and upright, not leaning on you. Encourage the child to keep arms forward by giving the child a toy to hold (fig. A). Then slide one of your feet forward, away from the couch or the chair, until one knee drops lower than other knee (fig. B). This will tip the child to one side and cause the child to balance. Slide your foot back toward the couch or the chair to bring your knee back up, to help the child return to an upright position. Tip the child to the other side by sliding your other foot forward. Move slowly at first, to give the child's body time to adjust and balance. As the child's balancing skills improve, move your legs faster.

Child Sitting across Your Lap

Sit on a couch or a chair, and seat the child sideways across your lap. Put one of your hands across the child's stomach to keep the child's back straight and the hips bent to 90 degrees. (If the child's body tends to fall forward because of difficulty in holding the body upright, support the child's chest with your hand.) Put your other hand across the child's bottom. The child's legs should be forward and together with knees bent over your leg, and the child should be sitting flat on bottom with hips bent to 90 degrees. Make sure the child's arms are forward and down.



Child Sitting across Your Lap, Learning to Balance

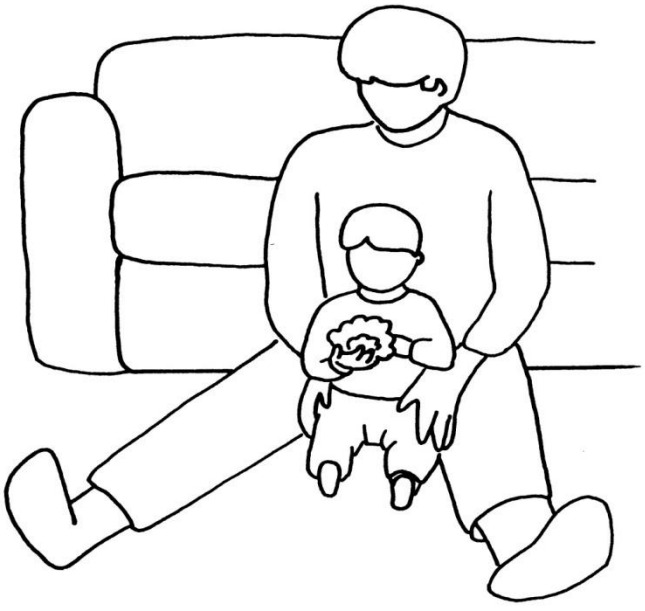
Sit on a couch or a chair, and seat the child sideways across your lap. Put one of your hands across the child's stomach to keep the child's back straight and hips bent to 90 degrees. Put your other hand across the child's bottom. The child's legs should be forward and together with knees bent over your leg. Make sure the child's arms are forward and down (fig. A). To help the child learn to balance, tip the child backward by gently pushing on the child's stomach. Move slowly at first, to give the child's body time to adjust and balance. You can help the child learn to feel the motion by moving your body sideways in the same direction as you tip the child (fig. B). To bring the child's body upright again, relax your hand on the child's stomach, and let the child independently move the body back to upright. You can assist by moving your body or leg to help the child move back to upright. Try not to let child lean on you or pull on you.

FIGURE A

FIGURE B

Child Long-Sitting with Your Support

Sit on the floor with your legs outstretched, and support your back up against the couch. Seat the child on the floor in front of you, between your legs. Bring the child's hips and back up against your body as closely as possible. This will keep the child's back straight and the hips bent to 90 degrees. Make sure the child's legs are straight, together, and forward. If necessary, support the child's hips with your hands to help keep the hips bent and the legs forward. You can also bring your legs in close to the child for additional support. The child's arms should be forward and down.



Child Long-Sitting on the Floor

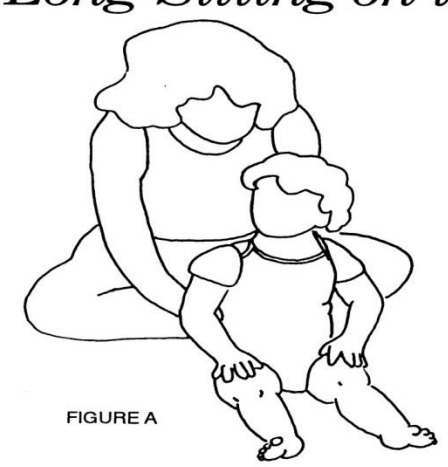


FIGURE A

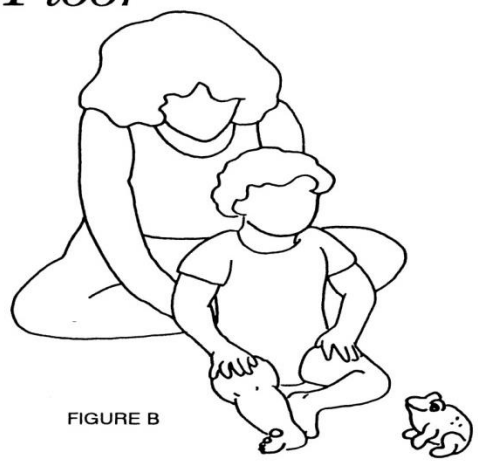
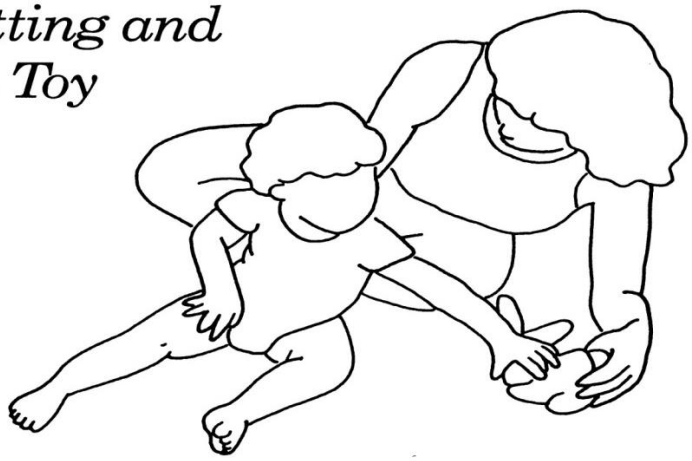


FIGURE B

Sit cross-legged on the floor, and support your back against a couch. Seat the child on the floor in front of your legs. Make sure the child sits with hips bent to 90 degrees and legs forward and straight. The child's legs should be slightly apart. Support the child's hips with your hands and hold the hips upright to help keep the child's back straight and the hips and legs in position. The child should be sitting flat on the bottom, not on the tailbone. The child's arms should be forward and down.

Child Long-Sitting and Reaching for a Toy



Sit cross-legged on the floor, and support your back against a couch. Seat the child on the floor in front of your legs. Make sure the child sits with hips bent to 90 degrees, with legs forward and straight. The child's legs should be slightly apart. If necessary, support the child's hips and hold the hips upright to keep the back straight and hips and legs in position. The child should be sitting flat on the bottom, not on the tailbone. The child's arms should be forward and down. Put a toy next to the child, but out of reach, and entice the child to get the toy. Help the child move the body to reach the toy by gently tipping the child's hips toward the toy, then help the child return to long-sitting by bringing the hips back to the upright position. Repeat to the other side.

Child Long-Sitting and Learning to Use Arms to Catch Balance

Sit cross-legged on the floor, and support your back against a couch. Seat the child on the floor in front of your legs. Make sure the child sits with hips bent to 90 degrees, with legs forward and straight. The child's legs should be slightly apart. Support the child's hips with your hands and hold the hips upright to help keep the back straight and the hips and legs in position. The child should be sitting flat on the bottom, not on the tailbone. The child's arms should be down, resting next to hips (fig. A). Tip the child's hips to one side, and allow the child to catch balance with one arm (fig. B). If the child needs help to use the arm, hold the child's elbow straight with one hand as you tip the child's hips with your other hand. Repeat to the other side.

FIGURE A

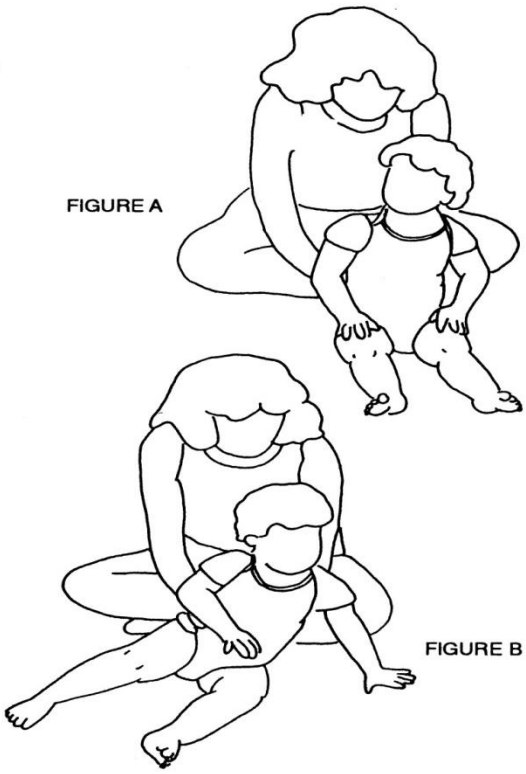
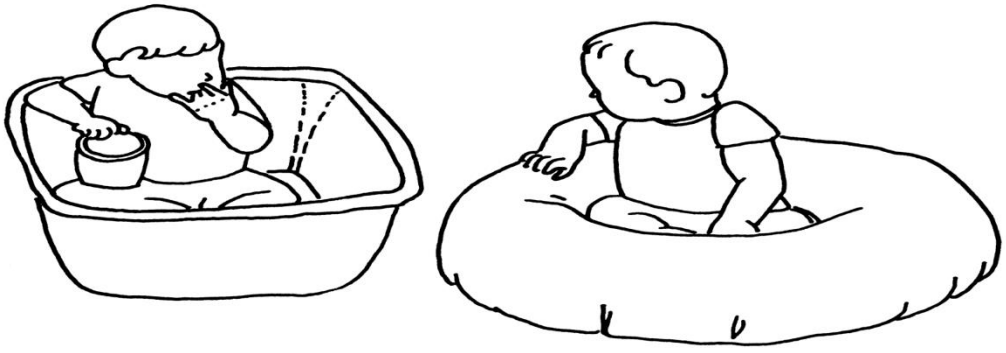


FIGURE B

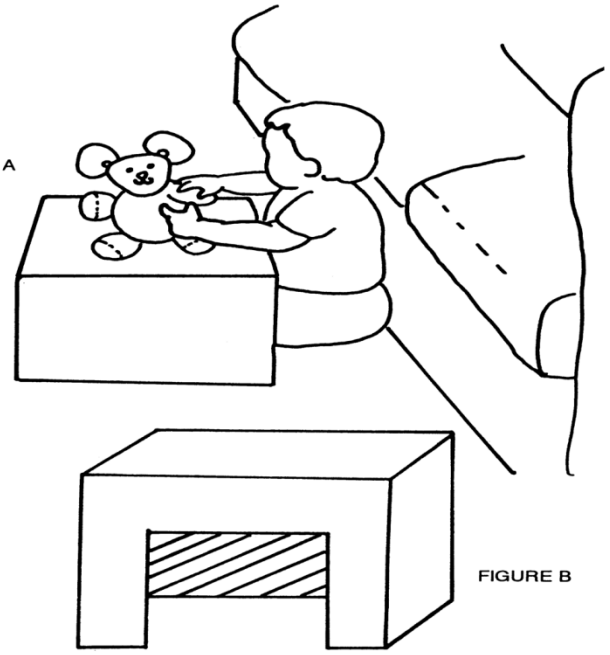
Child Sitting in a Laundry Basket, a Box, or an Inner Tube



Seat the child in a laundry basket, a box, or an inner tube. Make sure the child's hips and back are up against the side of the basket, box, or inner tube. The child should sit flat on the bottom, not on the tailbone. If the child needs more support, place a pillow on each side of the child's body. The child's arms should be forward and down.

Child Sitting on the Floor against a Couch, Using a Box as a Table

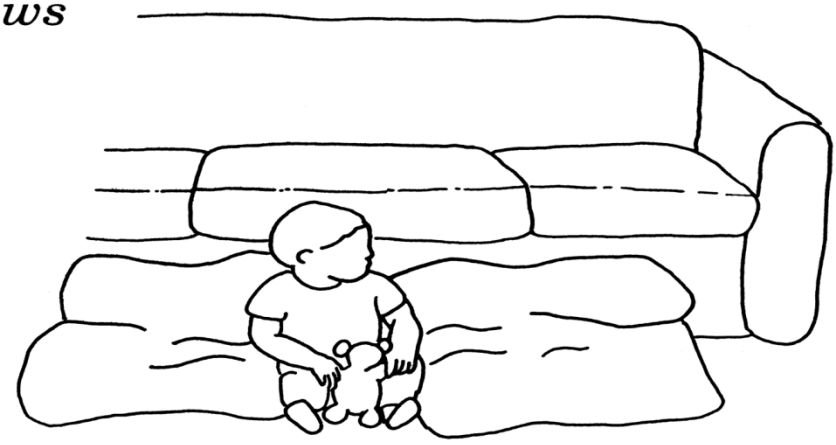
FIGURE A



Cut out one of the sides of a box that is 10 to 12 inches deep (see fig. B). Seat the child on the floor with hips and back up against the couch. Make sure that the child's hips are bent to 90 degrees with legs forward. The child should sit flat on the bottom, not on the tailbone. Place the box over the child's legs with the cut-out side of the box toward the child, and push the box up against the child's chest. Bring the child's arms forward onto the top of the box (fig. A). Place large pillows on both sides of the child's body if the child needs more support.

FIGURE B

Child Sitting on the Floor, Supported by Pillows



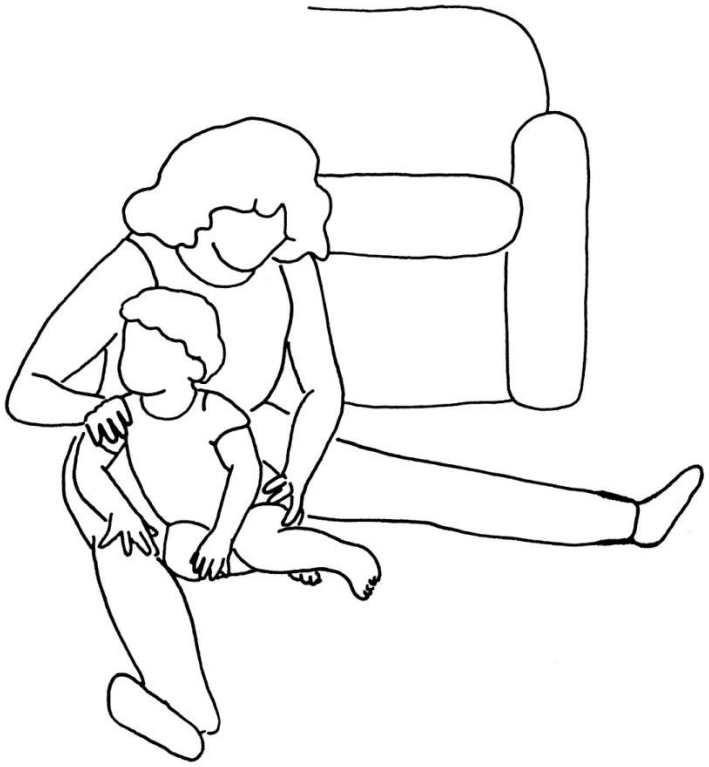
Seat the child on the floor in front of the couch. Make sure the child's hips and back are pushed up against the couch so that the back is straight and the hips are bent to 90 degrees. The child should sit flat on the bottom, not on the tailbone. The child's legs should be forward. Support the child with large pillows on both sides to keep the child from falling over. The child's arms should be forward and down.

Child Side-Sitting

Sit comfortably on the floor with your legs crossed or straight, and support your back against the couch. Seat the child on the floor in front of you. Bend both of the child's knees and turn both legs to the same side (one leg should rest on top of the other leg). Have the child lean on the arm that is on the same side as the bottom leg. Help the child place a hand flat on the floor with the elbow straight. Use one of your hands to support the child's arm and keep it straight. Use your other hand to support the child's hips and keep the legs bent. Make sure the child's free arm is down and forward. After the child has played for a while on one side, have the child side-sit to the other side.

Child Side-Sitting with an Arm Propped on Your Leg

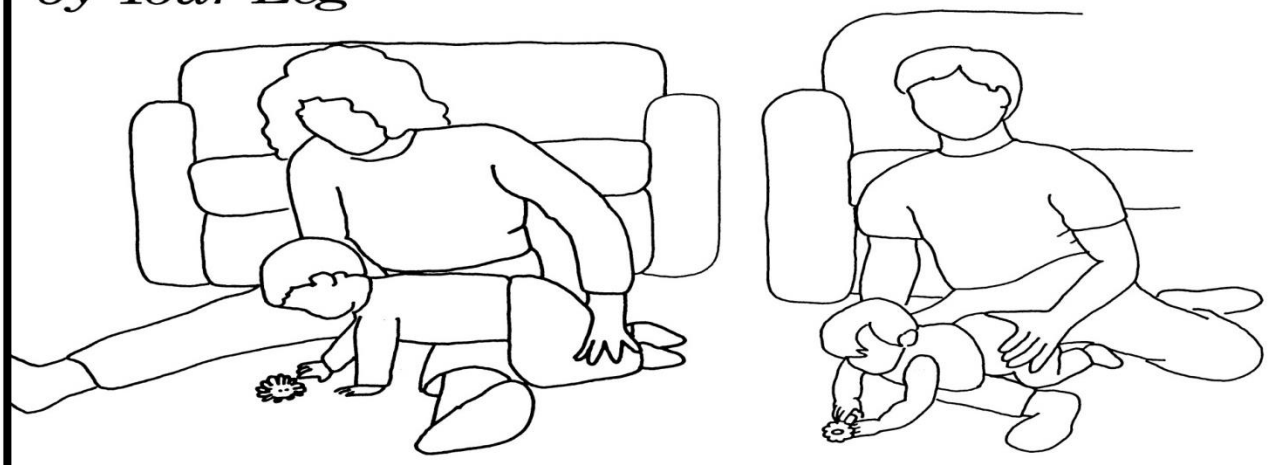
Sit on the floor with your legs straight and apart, and support your back against the couch. Seat the child on the floor in front of you, between your legs. Bend both of the child's knees and turn both legs to the same side (one leg should rest on top of the other leg). Put the child's elbow and forearm on top of your thigh for the child to prop on (have the child lean on the arm that is on the same side as the bottom leg). Use one of your hands to support the child's shoulder and keep it from collapsing. Use your other hand to support the child's hips and keep legs bent. Make sure the child's free arm is down and forward. After the child has played on one side for awhile, have the child side-sit to the other side.



3. FOUR-POINT, CRAWLING AND KNEELING

Training 4-point kneeling, crawling, and kneeling

Child on Hands and Knees, Supported by Your Leg



Sit on the floor with your legs outstretched or bent, and support your back against a couch. Place the child face-down across the lower part of your leg. Bend the child's legs so that the knees are under the hips. Use one of your hands to keep hips and knees bent; use your other hand to bring the child's arms forward. Place the child's hands on the floor so the child can push up on the arms.

Child Learning to Move from Side-Sit to Hands and Knees

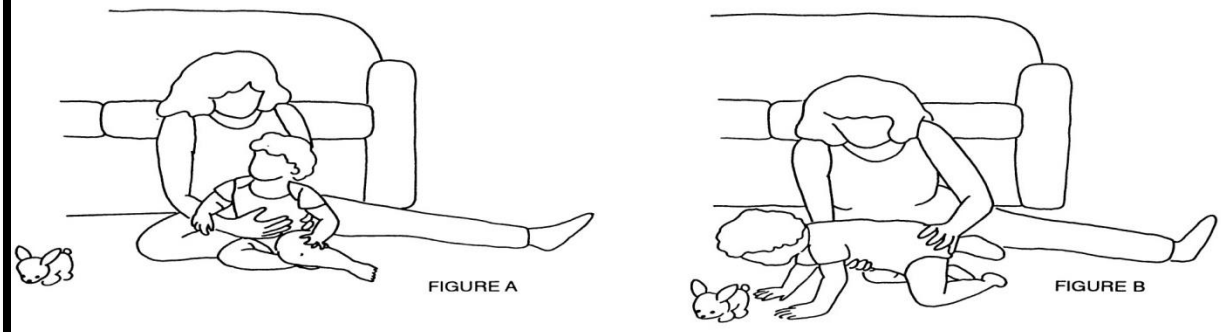


FIGURE A

FIGURE B

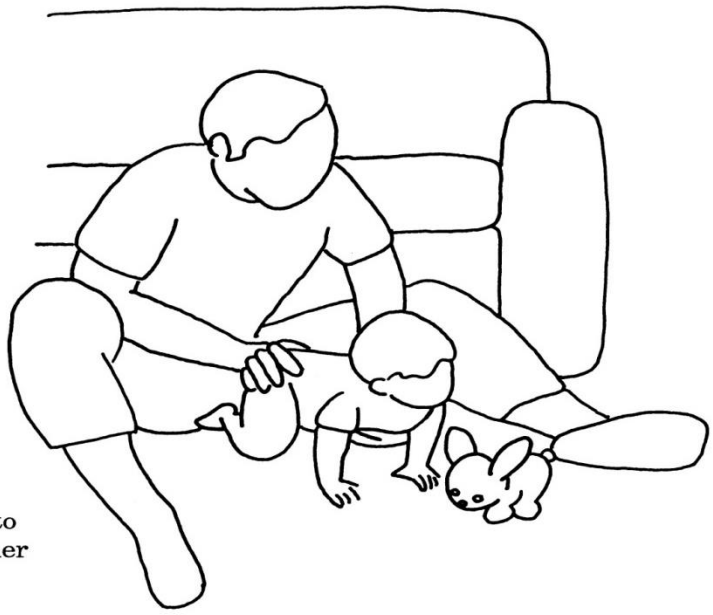
Sit on the floor with your legs crossed or with one leg straight and one leg bent. Support your back against a couch, and side-sit the child on the floor in front of your legs, facing away from you. Place one of your hands on the child's bottom and the other hand across the child's chest (fig. A). To encourage the child to move onto hands and knees, move the child's hips up over the knees with one hand. Support the child's body with your other hand as the child pushes up on arms (fig. B). To help the child return to side-sitting, move the child's hips to the side and back toward you with one hand. The child should be the one to bring the body back to an upright position. If necessary, guide the child's body with your other hand. After practicing the motion a few times, let the child move the body independently as much as possible. Include activities in which the child moves both to the right and to the left.

Child on Hands and Knees, Propped on a Couch Cushion

Put a couch cushion on the floor. Lay the child face-down on top of the cushion, with legs parallel, knees on the floor, and hips directly over knees. Make sure the child's elbows are directly under shoulders with hands forward. To encourage the child to lift up head and chest and push up on arms, place a toy on the cushion in front of the child. Support the child at the hips or shoulders if necessary.

Child on Hands and Knees, Supported by Your Hands

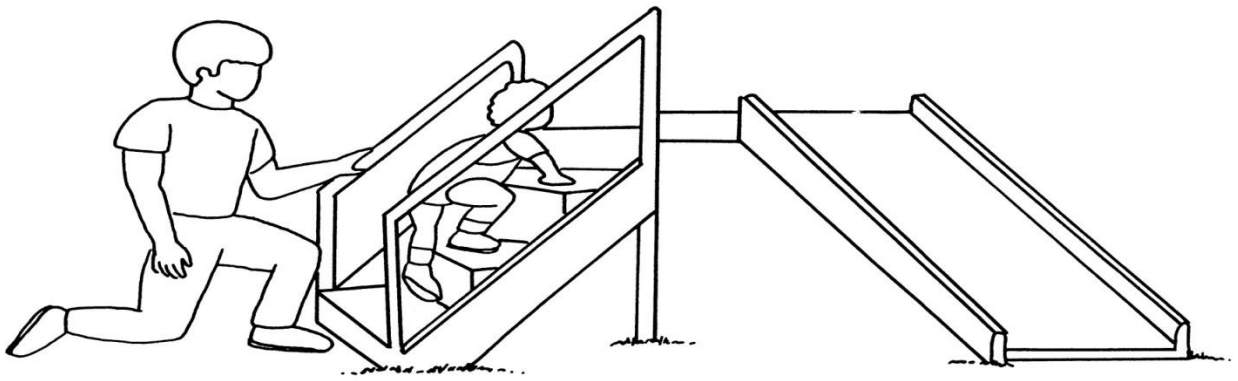
Sit on the floor, and support your back against a couch with your legs separated. Put the child face-down on the floor in front of you. Put one of your hands under the child's stomach and your other hand on the child's hips. Bend the child's hips and knees with one hand as you use your other hand to lift the child's body up and bring the knees under the hips. Use one hand to support the child's body; use your other hand to keep hips and knees bent.



Child Crawling over Your Legs

Sit on the floor with your legs outstretched, and support your back up against a couch. Put the child on hands and knees next to your legs. Entice the child to climb over your legs to get an interesting toy. To get the child started, put the child's hands on one of your legs, and encourage the child to move forward by holding and gently pushing the child's hips forward. Help the child keep hips and knees bent, if necessary. Allow the child to move arms and legs independently as much as possible. Support the child's body or hips only when necessary.

Child Crawling/Climbing Up Steps under Your Supervision

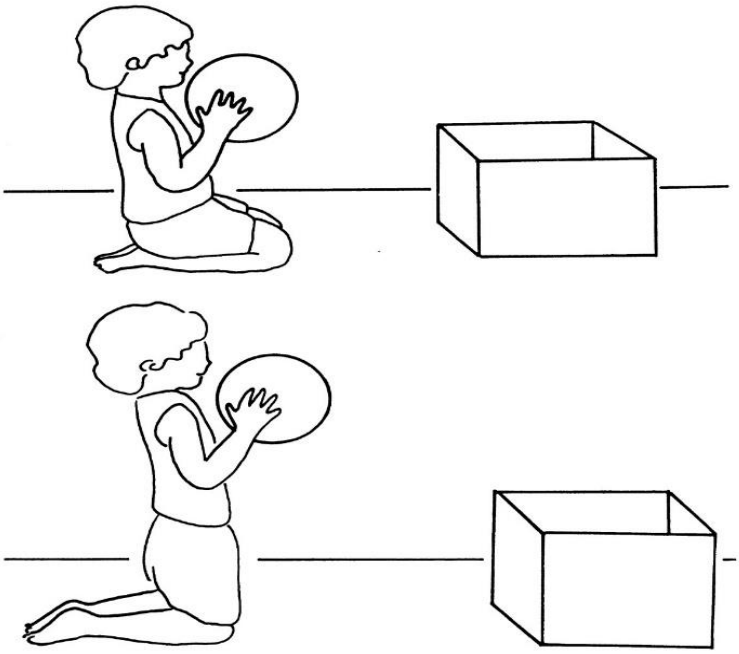


Use steps in your home or steps that lead up to a slide at the playground. Put the child on hands and knees in front of the bottom step. To help the child get started, put the child's hands on the first step. Help the child move forward by holding and gently pushing the child's hips forward. Help the child put knees or feet on the step if necessary. Allow child to move arms and legs independently as much as possible.

Child Walking on Knees, Pushing a Box or an Inverted Laundry Basket

Sit on the floor next to a box or an inverted laundry basket, and kneel the child next to it. Bring the child's arms down and forward, and place the child's hands on the rim of the box or basket. Slowly push the box or basket away from the child, to encourage the child to move forward, one knee at a time. As the child learns to balance and take steps forward with the knees, allow the child to push the box or basket independently.

Child Moving from Kneel-Sit to Kneeling, Independently

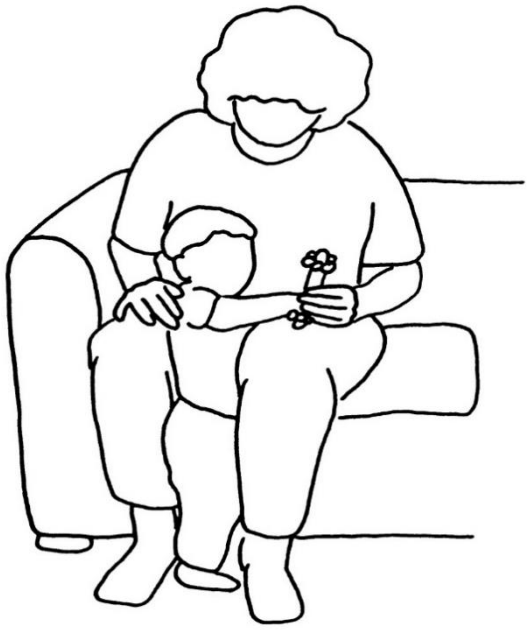


Kneel-sit the child (knees bent, legs together, feet tucked under bottom) 1 or 2 feet away from a box. Encourage the child to come up tall on knees with hips and body straight and throw a ball into the box. If the child needs help, place one of your hands across the child's bottom and your other hand across the child's stomach. Then use your hands to guide the child up into kneeling position. Allow the child to move independently as much as possible.

4. STANDING WITH SUPPORT

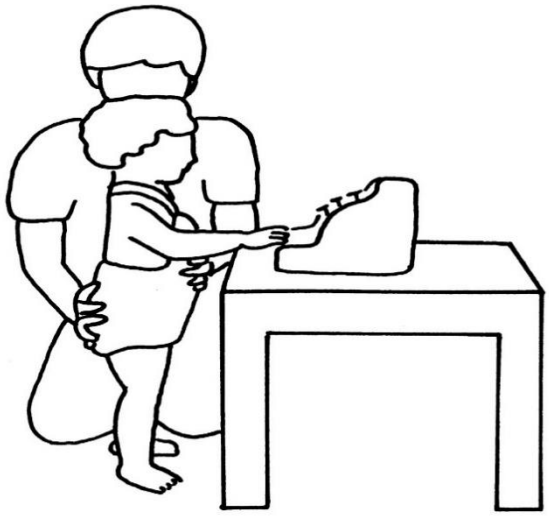
Training standing with support
Transitions in/out of standing

Child Standing on the Floor, Supported by Your Legs



Sit on a couch or a chair with your legs slightly apart. Stand the child on the floor in front of you, between your legs, with the child's side against the couch or chair. Support the child's body and hips with your legs. Gently squeeze your legs together to keep the child's hips and body straight, if necessary. Bring the child's arms forward to rest on top of one of your thighs, and show the child a toy.

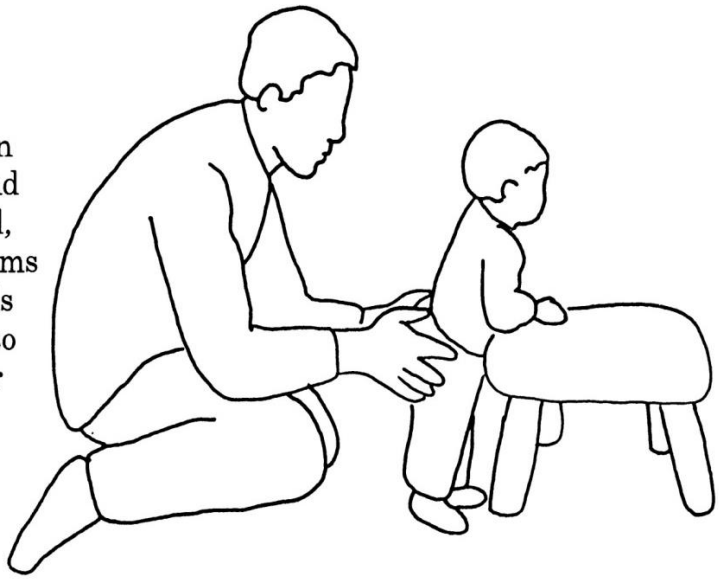
Child Standing in front of a Coffee Table or a Chair with Your Support



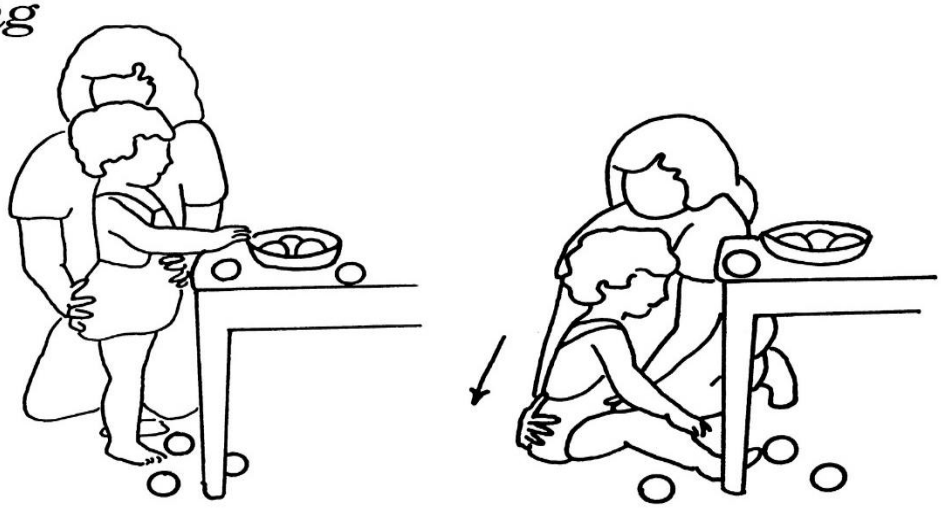
Sit on the floor next to a coffee table or a chair, and stand the child in front of the coffee table or chair. Bring the child's arms forward and place the hands on top of the table or chair so that the child can use the arms for support. Place one of your hands across the child's bottom and your other hand across the child's stomach to keep the child's body and hips straight. Put toys on the coffee table or chair.

Child Standing on the Floor in front of a Stool or an Inverted Box or Laundry Basket

Sit on the floor next to a stool or an inverted box or laundry basket, and stand the child in front of the stool, box, or basket. Bring the child's arms forward and place the child's hands on top of the stool, box, or basket so that the child can use the arms for support. To keep the child's hips straight, support the child's hips with your hands. Put toys on top of the stool, box, or basket.

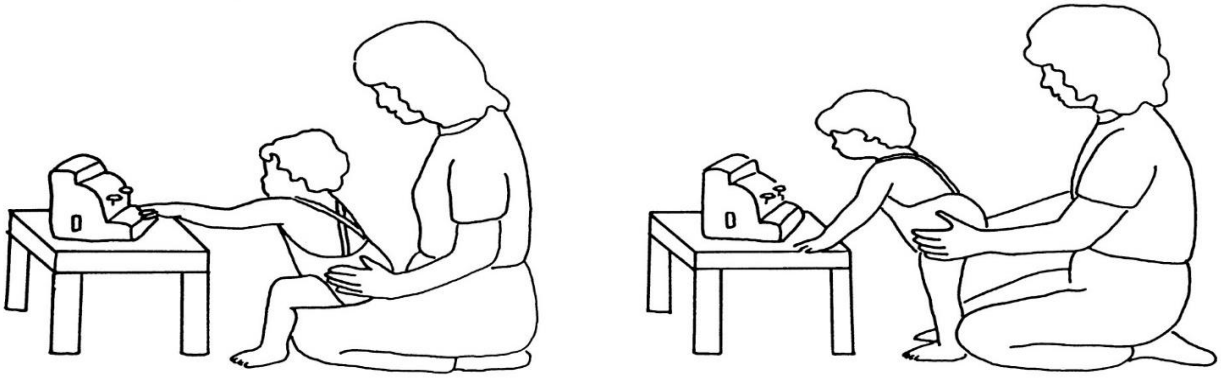


Child Learning to Sit on the Floor from Standing



Stand the child at a coffee table, a stool, or a couch. Bring the child's arms forward onto the top of the table, stool, or couch. Support the child with one of your hands across the child's bottom and your other hand across the child's stomach. To encourage the child to sit down on the floor, have toys on the floor for the child to reach toward. Then move the child's body and bottom backward and downward toward the floor in a diagonal motion as the child bends the hips. Allow the child to be doing as much of the work as possible.

Child Learning to Stand from Sitting on Your Lap



Kneel-sit or sit cross-legged on the floor in front of a couch, a coffee table, or a stool. Seat the child on your lap, making sure the child's hips and knees are at 90 degrees and the feet are flat on the floor. Support the child's hips with your hands and encourage the child to reach toward the couch, table, or stool. Then, move the child's hips forward and up over the child's feet as the child straightens the legs. Allow the child to be doing as much of the work as possible. When the child learns to stand up independently, you no longer need to support the hips. You can help the child learn to sit back down by bringing the child's hips back and down toward your lap.

Child Moving from Kneel to Half-Kneel to Stand While Holding onto Furniture

Kneel the child in front of a coffee table, a chair, or a couch. Bring the child's arms forward and put the child's hands on the table. Sit behind the child, and help the child bring one leg forward to assume half-kneel position. Hold the child's hips as you gently push the child's bottom up over the leg that is forward. Allow the child to push up on the forward leg and straighten both legs independently to get into standing position.

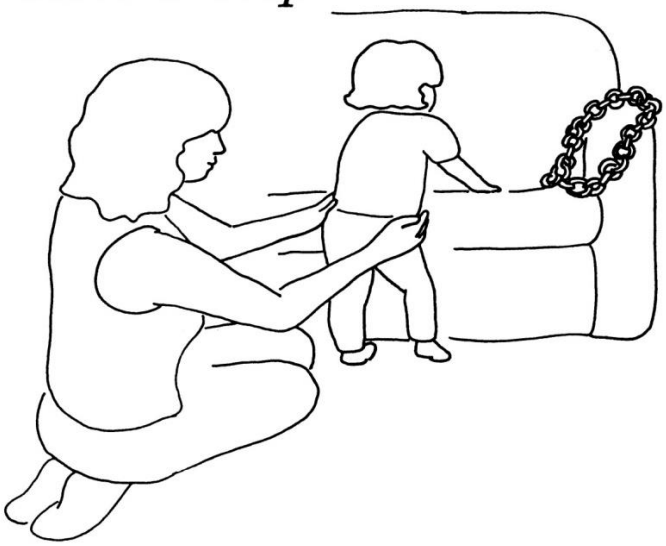
5. INDEPENDENT STANDING AND WALKING

Training independent standing balance

Training side-stepping (cruising) and walking with/without environmental support

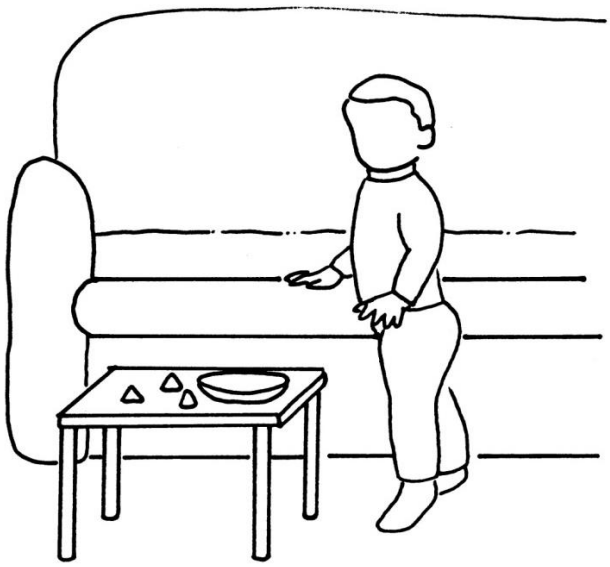
Child Standing on the Floor, Holding onto a Couch, Being Assisted to Shift Body Weight Sideways to Take a Step

Stand the child on the floor facing the couch. Bring the child's arms forward and place the child's hands on the couch cushions for support. Sit on the floor behind the child, and place your hands on the child's hips. Slowly and gently move the child's hips sideways until the child has body weight mostly on one leg. Then entice the child to step sideways with the free leg, and allow the child to move hips to bring the body weight over that leg. Have the child then step sideways with the other leg to bring the legs together again.



Child Standing, Stepping between Furniture

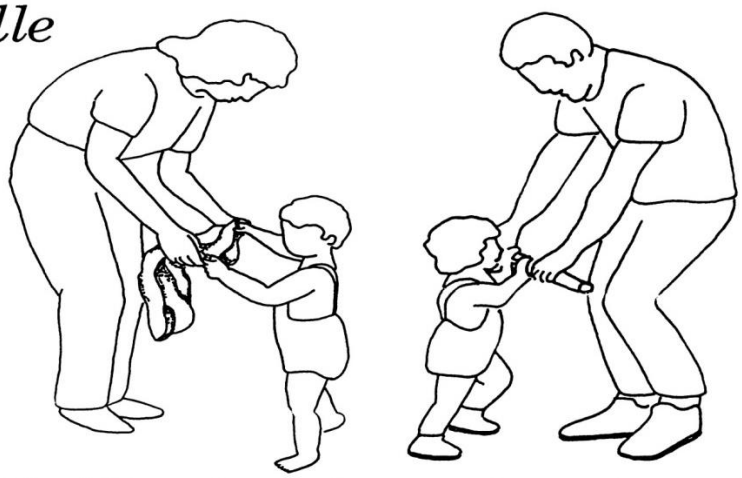
Stand the child on the floor, facing the couch. Bring the child's arms forward and place the child's hands on the couch cushions. Place a coffee table, a stool, or a chair 1 or 2 feet away from the couch, and put a toy or a snack on it. Entice the child to reach and step toward the furniture to get the toy or the snack. As the child becomes better at stepping from one piece of furniture to another, separate the furniture a little more. This will encourage the child to balance more and eventually to try standing alone.



Child Walking While Pushing a Box, an Inverted Laundry Basket, or a Chair

Sit on the floor next to a box, an inverted laundry basket, or a chair, and stand the child next to it. Bring the child's arms down and forward, and place the child's hands on top of the box or basket or on the seat of the chair. To encourage the child to take a step forward, use one hand to push the box, basket, or chair slowly away from the child. Support the child's hips with your other hand, if necessary. Allow the child to take a step independently. As the child learns to balance and take steps, allow the child to push the box, basket, or chair alone.

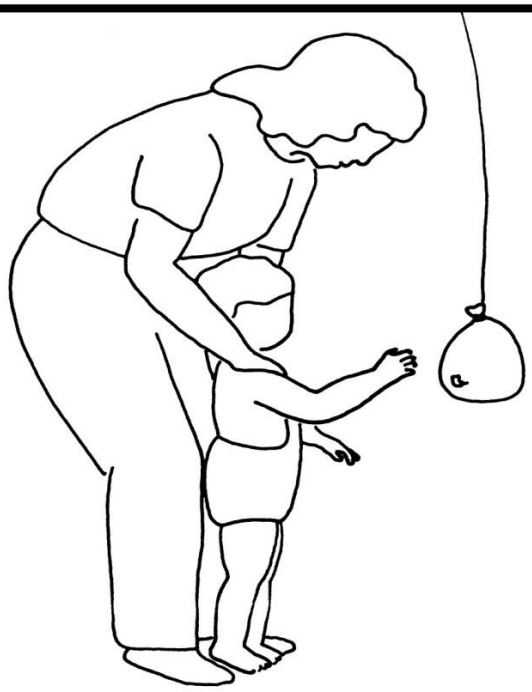
Child Walking While Holding onto a Broom Handle or a Towel



Note: This activity is good for children who can almost stand and walk on their own but still need a little support. Holding onto the broom handle gives the child more support than holding onto the towel. Use the broom handle first until the child's balance improves, then try the towel.

The child should be facing you, standing on the floor in front of you, holding onto your legs. Bend over and put the child's hands on the broom handle or towel. Hold the broom handle or towel in front of the child at shoulder level, then slowly walk backward to draw the child along, walking forward.

Child Learning to Stand Independently



Stand or sit on a chair. Stand the child, facing away from you, in front of your legs, and support the child by the shoulders. Allow the child to lean back against your legs. Use your legs to make sure that the child keeps the body upright, hips straight over the feet. When you feel that the child is balanced, let go of the child's shoulders.

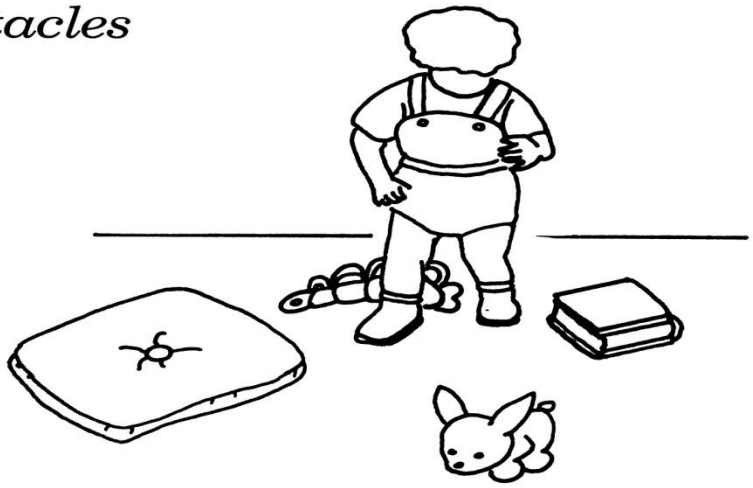
Child Standing, Learning to Balance by Stepping on a Pillow or a Book

FIGURE A

FIGURE B

Sit on a couch with your legs apart, and stand the child on the floor in front of you. Put a large pillow, a couch cushion, or a book on the floor next to the child's feet. Support the child by the hands as you encourage the child to step on and off the pillow or the book (fig. A). If the child tends to pull on your hands, then support the child by the shoulders instead (fig. B).

Child Learning to Walk around, over, or on Obstacles



Put pillows, couch cushions, a telephone book, and some soft, unbreakable toys on the floor, spacing them approximately 2 feet apart. Stand the child on the floor and encourage the child to walk around, over, or step on the objects on the floor.

Child Walking While Carrying a Large Object

To further improve the child's balancing skills, or to help the child learn to keep both arms down and forward, have the child carry something large. This could be a large ball, a large stuffed toy, a bed pillow, a cereal box, or a shoe box with smaller toys inside. The object should be large enough so that the child will need to use both arms to hold it, but it should not be heavy.

Child Learning to Squat and Play, with Your Assistance

Kneel-sit on the floor, and seat the child on your knees, making sure the child's feet are flat on the floor and slightly apart. Put a toy on the floor in front of the child, and put your hands on the child's knees. Use your hands to move the child's knees forward until the child's bottom moves off your knees. Separate the child's knees a little so that the child's body can move forward and the body weight is over the child's feet. The child should bring arms forward to reach for the toy. From squat position, the child can either stand up or move the bottom back to sit on your knees again.

6. ADVANCED SKILLS IN STANDING

Training balance and coordination (GMFCS Levels I and II)

Standing Balance Sequence

- Stand on both feet and reach up for toy by going onto tiptoes
- Balance on one foot for 3 to 5 seconds and slowly increase as the task becomes easier
- Step slowly onto a 6” block without support
- Step off a 6” block without support
- Touch targets on the floor with 1 foot while balancing on the other foot. Repeat the activity while standing on the other foot.
- Stand on one foot with eyes closed
- Play idea: Getting the child to reach for or touch with foot while balancing on other foot/target/images, animals they like, different numbers

Early Walking Skills

- Walk sideways and backwards
- Carry different sized toys or objects while walking
- Walk between 2 lines or 2 surfaces
- Walk around obstacles (such as cans placed randomly around the floor).
- Walk on uneven surfaces (grassed or sand surface outdoors or blanket with pillows under indoors)
- Play idea: Playing “Follow the leader” or imitating your actions. Or get child to walk up or down incline to get a toy

Intermediate Walking Skills

- Walk on tiptoes
- Walk on heels
- Walk over obstacles
- Walk up and down inclines (ex: up and down small hills outdoors)
- Play idea: Playing “follow the leader” while doing the different tasks

Advanced Walking Skills

- Follow paths traced on the ground using available items
- Walk, turn, and stop on command
- Walk on specific targets (using the environment or outdoor items)
- Progressively increase the speed of all these activities as the child acquires greater balance and coordination.

Stair Skills Progression

- ↑ and ↓ stairs holding the railing and an adult's hand, 2 feet per step.
- ↑ and ↓ stairs holding the railing and an adult's hand, alternating feet.
- ↑ holding railing, 2 feet per step.
- ↑ holding railing, alternating feet.
- ↑ without holding, alternating feet.
- ↓ holding railing, 2 feet per step.
- ↓ holding railing, alternating feet.
- ↓ without holding, alternating feet.

Ball Skills - Throwing Progression

- Roll the ball on the ground
- Catch a rolling ball
- Stand and throw a ball with no specific direction
- Position hands to catch a ball
- Throw ball to a person (specific direction) or toss it into a bucket
- Catch large ball from 1-2 feet away
- Bounce on ground in a specific direction or to a person.
- Bounce and catch a ball in front of them
- Progress skills by decreasing the size of the ball, increasing the distance, increasing the inflation of the ball, or changing to a ball with a different texture.

Ball Skills- Kicking Progression

- Walk into a placed ball with attempt to kick
- Stand and kick a placed ball
- Walk and kick a placed ball
- Run and kick a placed ball
- Kick towards a specific target
- Kick a ball rolling towards you
- *** Do all task with both left and right foot

Jumping Skills Progression

- Jump on flat surface with hands held, leading with 1 foot
- Jump 2 feet together on floor without hands held
- Jump from a step with one foot leading
- Jump from a step with both feet together
- Jump forwards with both feet together
- Jump up and forward over a small object (i.e. a piece of rope) and progressively increase the height
- Hop on 1 foot. (do on both sides)
- Skipping

Imitation Skills Progression

- Moving only 1 limb
- Moving 2 limbs together at the same time
- Alternating 2 limb movements at the same time
- Copying complex body movements

Imitation skills are good for overall body coordination and motor planning
Use imitation games or songs are effective ways of doing so.
Begin tasks on the solid ground and progress on irregular ground.

Obstacle Courses

- Effective ways of incorporating many gross motor skills in 1 activity.
- Stimulates your child's planning skills as well as an awareness of their body in relation to other objects in their environment.
- Objects used in the obstacle course can be stepped over, crawled under, crawled through, passed between, or used to make paths to follow.

7. UPPER EXTREMITY AND FINE MOTOR SKILLS GOALS AND INTERVENTION (EI App)

Limitation	Goal	Intervention
Not able to take hand to mouth	Able to take hand to mouth for eating, drinking, brushing teeth	-Forward, backward, side ward reaching activities -Shoulder wheel
Not able to touch top of head	Able to touch top of head to brush the hair, to apply oil, shampoo	-Forward, backward, side ward reaching activities -Shoulder wheel
Not able to reach behind neck	Able to reach behind neck to adjust shirt collar, to pull the shirt while dressing	-Forward, backward, side ward reaching activities -Shoulder wheel
Not able to reach mid back	Able to reach midback for applying soap, dressing activity	-Forward, backward, side ward reaching activities -Shoulder wheel
Not able to reach knee	Able to reach knee for pulling the trousers, to apply soap	-Forward, backward, side ward reaching activities -Shoulder wheel
Not able to reach objects on same side	Able to reach objects on same side and able to pick up the things	-Forward, backward, side ward reaching activities -Shoulder wheel
Not able to reach objects on opposite side	Able to reach objects on opposite side and able to pick up the things	-Double drums: Make the child to bang the right drum with the left hand and the left drum with the right hand -Place objects to sort on the left side and containers to place them on the right side -Making figure 8 -Draw a large circle, oval or any picture that requires a left to right reach
Not able to do bilateral hand activities	Able to do bilateral hand activities for buttoning, cleaning dishes, etc.	-Bilateral hand activities training
Not able to isolate fingers	Able to isolate fingers for using keyboards, to use clothe pins, to put the switches etc.	-Finger painting -Playing Musical Instruments -Trace shapes, numbers etc. -Keypad gadgets -Counting on finger one at a time
Not able to release objects voluntarily	Able to release objects voluntarily like after drinking able to replace the tumbler etc.	-Building Blocks -Stacking cups
Does not have cylindrical grasp	Able to grasp cylindrical objects appropriately for	-Cylindrical grasp activities with balls, -Peg board, plastic bottles

	drinking, able to hold powder container etc.	
Does not have spherical grasp	able to grasp spherical objects appropriately for opening and closing the bottle etc.	-Spherical grasp activities with tactile balls, light up balls, small stuffed animals
Does not have hook grasp	Able to grasp suitable objects by hook grasp like able to carry the basket, able to hold the handrails	Hook grasp activities with rings
Not able to make tip to tip prehension	able to make tip to tip prehension to pick up a coin	Precision activities series activities
Not able to make pulp to pulp prehension	Able to make pulp to pulp prehension	Precision activities series activities
Does not have medial tripod grasp	Have medial tripod grasp to hold a pencil	Precision activities series activities
Does not have lateral tripod grasp	Have lateral tripod grasp like able to use a key	Precision activities series activities
Does not have rotation -in-hand manipulation	Able to do rotation – in-hand manipulation like rotating the pencil from the lead side to the eraser side	In-hand manipulation series activities
Does not have shifting- in-hand manipulation	Able to do shifting – in-hand manipulation like move fingers to the bottom of a pen to get ready to write	In-hand manipulation series activities
Does not have translation- in-hand manipulation	Able to do translation – in-hand manipulation like moving coins from your palm to fingertips to put the coins in a container	In-hand manipulation series activities

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CHAPTER 7

CEREBRAL PALSY AND MOTOR IMPAIRMENTS: ICF-BASED GOALS AND INTERVENTIONS (EI APP)

LIMITATION	GOAL	INTERVENTION
ICF-ACTIVITY AND PARTICIPATION **Indoor Mobility**		
Child has difficulty in walking within home	To walk at home independently	-Standing static and dynamic activities -Gait training over different surfaces -Balancing Activities -Walking up and down in an incline -Walking between barriers (narrow BOS) -Kicking activities in standing -Training on stepping up and down
	To walk using a hand-held mobility device within home	-Counseling caregiver and child about the need of mobility device -Referral to mobility aid support and services -Check size, teach maintenance of mobility aids -Gait training - Endurance training with mobility aids in home -Training on step upward and downward
	To walk for short distances (1 to 2 metres) with physical assistance	-Training on transfer between sitting to standing -Gait training - side walk, walk holding wall -Teach safety in mobility -Environmental- ensure floor is not slippery and physical support to hold -Teach caregiver about transfer techniques and supported walking
Child is unable to walk in home	To crawl at home to reach different places	-Counseling caregiver and child about safety and environmental modification -Training crawling (Facilitation)
	To use a W/C for indoor mobility -self or propelled	-Counseling caregiver and child about the need of W/C -Referral to W/C support and services -Check size, teach maintenance and maneuver of W/C to caregiver -Transfer techniques from bed/floor/chair to W/C -Teach W/C self-maneuver technique
Child is unable to transfer by self	To transfer the child from one place to another with minimum strain for caregiver	-Teach lifting, carrying and transfer technique to caregiver -Training child on supported weight bearing while transferring

ICF-ACTIVITY AND PARTICIPATION School Mobility		
Child has difficulty in walking in school or compound building.	To walk at school and compound building freely	-Standing static and dynamic activities. -Gait training over different platforms -Balancing activities -Walking up and down in an incline -Walking between barriers (narrow BOS) -Kicking activities in standing
	To walk at school and compound building slowly within 100 M.	-Standing static and dynamic activities. -Gait training over different platforms -Balancing Activities -Walking up and down in an incline -Walking between barriers (narrow BOS) -Kicking activities in standing
	To walk using a hand-held mobility device at school and compound building.	-Counseling caregiver and child about the need of mobility device -Referral to mobility aid support and services -Check size, teach maintenance of mobility aids -Gait training -Endurance training with mobility aids in home
	Child uses W/C for indoor mobility	-Counseling caregiver and child about the need of WC -Referral to WC support and services -Check size, teach maintenance and maneuver of WC to caregiver -Transfer techniques from bed/floor/chair to W/C -Teach WC self-maneuver technique
ICF-ACTIVITY AND PARTICIPATION Outdoor Mobility		
Child has difficulty in walking in the community	Child walks in the community freely	-Standing static and dynamic activities. -Gait training over different platforms -Balancing activities -Walking up and down in a incline -Walking between barriers (narrow BOS) -Kicking activities in standing
	Child walks in the community with a hand-held mobility device and less than 500 M	-Standing static and dynamic activities. -Gait training over different platforms -Balancing activities -Walking up and down in a incline -Walking between barriers (narrow BOS) -Kicking activities in standing
	Child uses wheelchair for community mobility.	-Counseling caregiver and child about the need of W/C -Referral to W/C support and services -Check size, teach maintenance and maneuver of W/C to caregiver -Transfer techniques from bed/floor/chair to W/C

		-Teach W/C self maneuver technique
ICF-ACTIVITY **Attaining a Functional Posture**		
Child does not attain functional position for learning and communication	To readily attain functional positioning	-Teach importance of good posture -General spinal mobility and strengthening exercises
	To attain functional positioning with postural adaptation	-Counseling caregivers and child about the importance of good posture -Refer for suitable postural aids -Check the size and posture
ICF-ACTIVITY **Functional Transfers**		
Child has difficulty in transferring from bed to chair/WC or floor to chair/WC	To transfer from bed to chair/WC, floor to chair/WC	-Teach transfer technique to child and support level to caregiver -Work on suitable adaptations to facilitate transfer
Child has difficulty in transferring chair to W/C and vice versa	To transfer from bed to chair/WC, floor to chair/WC	-Teach transfer technique to child and support level to caregiver -Work on suitable adaptations to facilitate transfer
ICF-ACTIVITY **Hand Function**		
Child is not able to use hands effectively for function	Child uses hands for eating, playing, reading and communication when positioned in adaptive seating.	-Teach parent- importance and maintenance of good posture for hand function -Suitable postural aid and hand splints if required -Train reaching, grasping, release, maintaining the grasp etc. -Material adaptation if required (OT input)
ICF-ACTIVITY **Self-Care**		
Child has difficulty in using toilet independently	Child uses toilet independently	Position and balance training
	Child uses toilet independently but slow in activities	-Position and balance training -Minimum safety adaptation at toilet

	Child reach and perform big and small job but may need support for cleaning and transferring	-Training indoor mobility and transfer -Work on accessibility in the toilet -Work on equipment adaptations
	Toilet function with support of caregiver with suitable home adaptations	-Training indoor mobility and weight bearing on transfer -Work on accessibility in the toilet -Work on equipment adaptations
Child has difficulty in bathing independently	Child bath herself independently	Positioning and maintaining the posture
	Child bath herself independently but slow in activities	Train the caregiver in bathing in modified position
	Bathing with support of caregiver with suitable home adaptations	Work on accessibility in the bathroom
	Bathing with maximum support of caregiver with suitable home adaptations	Work on equipment adaptations
Child has difficulty in dressing independently	Child dress herself independently	Analyze the suitable posture and materials required to maintain the posture for dressing
	Child dress herself independently but slow in activities	Facilitate the support required for getting the materials
	Dressing with minimum support of caregiver	Train the caregiver in dressing in modified position
	Dressing with the support of caregiver with suitable positioning and adaptations in clothes	Work on knot and unknot activities on caregiver
Child has difficulty in eating independently	Child eats independently from preparation to cleaning utensils	Analyze the suitable posture and materials required to maintain the posture for feeding
	Child eats independently from preparation to cleaning utensils but slow	Facilitate the support required for getting the materials
	Child does only eat independently	Train the caregiver in feeding the children in the modified position
	Child eats with suitable adaptations	Work on accessibility in home

	Caregiver feeds the child with suitable position worked out for less stress	Work on equipment adaptations of feeding/eating
Child has difficulty in brushing independently	Child brushes independently	Analyze the suitable posture and materials required to maintain the posture for feeding
	Child brushes independently with minimum adaptations	Facilitate the support required for getting the materials
	Child brushes with support for transfer and reach/maximum adaptations	Train the caregiver in brushing the children in the modified position
	Child eats with suitable adaptations	Work on suitable adaptations
	Caregiver does brushing the child with suitable position worked out for less stress	Train the caregiver brushing activities in adaptations support
Child has difficulty in grooming independently	Child does grooming independently	Analyze the suitable posture and materials required to maintain the posture for feeding
	Child does grooming independently with minimum adaptations	Facilitate the support required for getting the materials
	Grooming supported by caregiver	Train the caregiver in brushing the children in the modified position
	Caregiver does grooming with suitable position and adaptations	Work on equipment adaptations of feeding
ICF- PARTICIPATION **Participation in School**		
Child does not attend school	Child attends school regularly	-Address parent concerns -Address Peers and Teachers concerns -Suitable mobility aid/human assistance if required -Advocate on school/class access and helpers
	Child attends special school	-Address parent concerns -Address peer and teacher concerns -Suitable mobility aid/human assistance if required

	Child attends school only few days in a week	-Address parent concerns -Address peer's and teacher's concern -Suitable mobility aid/human assistance if required -Advocate on school/class access and helpers
ICF-PARTICIPATION **Participation in Sports and Physical Activities**		
Child does not participate in physical activities and sports	Child participate in sports and physical activities in the school/community.	-Counseling caregivers and child about the sports and physical activities -Identify suitable physical activities/sports with the interest of the child -Facilitate local gym service if possible. -Work on suitable mobility/postural adaptations if required -Training - Individual & Group running -Balance training
Child does not participate in a chosen activity	Child participates in a chosen activity	Facilitate supports needed to access activity
ICF- BODY STRUCTURES AND FUNCTION **Prevention of Contractures & Deformities**		
At risk to develop spinal deformity	Maintain correct spinal alignment	-Teach child and caregiver about importance and awareness of good posture -Teach spinal mobility & strengthening exercises -Adaptations in chair or wheelchair
At risk to develop lower limb deformities	Maintain good posture of lower limbs	-Teach child and caregiver about importance and awareness of good posture -Teach passive/self stretching exercises -Teach passive/active mobility exercises -Train good posture techniques -Referral to obtain calipers
At risk to develop upper limb deformities	Maintain good posture of upper limbs	-Teach child and caregiver about importance and awareness of good posture -Teach passive/self stretching exercises -Teach passive/active mobility exercises -Work out good posture techniques -Referral to splints

Has a spinal deformity	Correction of spinal deformities	-Teach child and caregiver about importance and awareness of good posture -Teach spinal mobility & strengthening exercises -Adaptations in chair or wheelchair -Referral to spinal braces -Referral for surgical intervention
Has deformities in lower limbs	Correction of deformities in lower limbs	-Teach child and caregiver about importance and awareness of good posture -Teach passive/self stretching exercises -Teach passive/active mobility exercises -Train good posture techniques -Referral to calipers
Has deformities in upper limbs	Correction of deformities in upper limbs	-Teach child and caregiver about importance and awareness of good posture -Teach passive/self stretching exercises -Teach passive/active mobility exercises -Work out good posture techniques -Referral for splints

CHAPTER 8

INTERVENTION FOR OTHER COMMON PEDIATRIC CONDITIONS

1. Clubfeet (CTEV)
2. Erb's Palsy
3. Muscular Dystrophy
4. Spina Bifida
5. Spinal Deformity
6. Torticollis
7. Visual Impairment and Cortical Visual Impairment

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1. Clubfeet (CTEV)

Clubfoot or Congenital Talipes Equinovarus (CTEV), is a complex, congenital deformity of the foot involving malalignment of the foot involving soft and bony structures in the hindfoot, midfoot and forefoot and affecting the position of the foot.

It presents as:

- Adductus (towards midline) of the forefoot
- Cavus (high arch) of the midfoot
- Varus (an inward turning) hindfoot
- At the subtalar joint, the foot is held in a fixed equinus (plantarflexion)

Causes of CTEV

- Intrauterine position of the fetus
- Mechanical compression
- Increased hydraulic pressure
- Interruption in fetal development
- Viral infections
- Vascular deficiencies
- Muscular alterations (ex. arthrogryposis)
- Neurological conditions (ex. spina bifida)
- Defect in the development of the bone structures and genetic defects

Clubfoot Classification

- **Untreated Clubfoot**: All clubfeet from birth up to 2 years of age that have had very little or no treatment.
- **Treated Clubfoot** - Untreated clubfeet that have been corrected with Ponseti treatment are termed “treated clubfeet”. They are usually braced full-time for 3 months and at night up to age 4 or 5 years.
- **Recurrent Clubfoot**: A clubfoot which has achieved a good result with Ponseti treatment, but the deformity has recurred. The commonest reason is due to abandoning the braces early.
- **Neglected Clubfoot**: A clubfoot in a child older than 2 years, where little or no treatment has been performed. The neglected clubfoot may respond to Ponseti treatment, but also may have bony deformity that requires surgical correction.
- **Complex Clubfoot**: Any foot with deformity that has received any type of treatment other than the Ponseti method may have added complexity because of additional pathology or scarring from surgery.
- **Resistant Clubfoot**: A clubfoot where Ponseti treatment has been correctly performed but there has been no significant improvement. Often not idiopathic and is secondary or syndromic.
- **“Atypical” Clubfoot**: Often involves a foot that is often swollen, has a plantarflexed first metatarsal and an extended big toe. It can occur spontaneously but most often occurs after slippage of a cast.

Management of Clubfoot

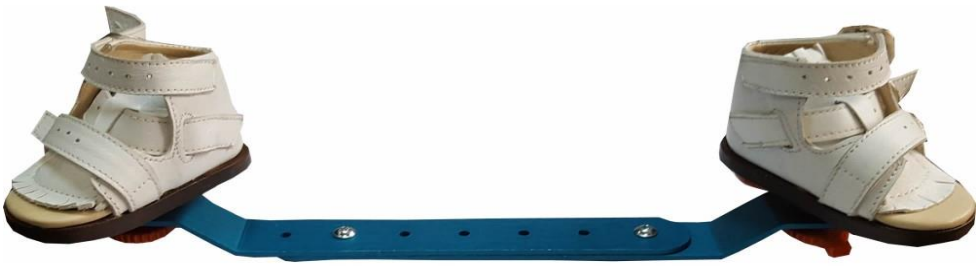
Ponseti Method (2 phases)

1. Corrective Phase:

Involves serial manipulation, serial casting and tenotomy of Achilles tendon.

2. Maintenance Phase:

Involves the use of foot abduction brace to prevent the occurrence of relapse. Bracing is recommended for 3 months full-time and at night till age 4.



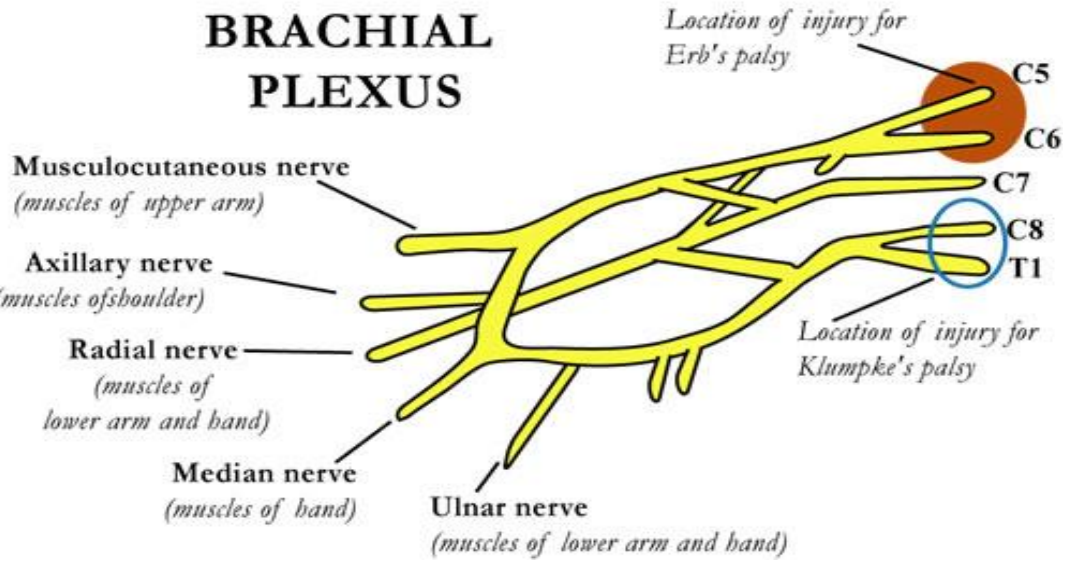
Reference:

https://en.hesperian.org/hhg/Disabled_Village_Children:Club_Feet

https://en.hesperian.org/hhg/Disabled_Village_Children:Chapter_60:_Correcting_Club_Feet

2. Erb’s Palsy

- The paralysis can be partial or complete; the damage to each nerve can range from bruising to tearing. The most commonly involved root is C5 (Erb’s point: the union of C5 & C6 roots) .
- The most commonly involved nerves are the suprascapular nerve, musculocutaneous nerve and the axillary nerve.



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ns of Erb's palsy include loss of sensation in the arm and paralysis and atrophy of the deltoid, biceps, and brachialis muscles.
- The position of the limb is characteristic: the arm hangs by the side and is rotated medially; the forearm is extended and pronated.
- The arm cannot be raised from the side; all power of flexion of the elbow is lost, as is also supination of the forearm. The resulting biceps damage is the main cause of this classic physical position commonly called "waiter's tip".

Erb’s Palsy Posturing

Physiotherapy Intervention

- During the first 6 months: treatment is directed specifically at prevention of fixed deformities as recovery occurs
- Educating parents on appropriate handling and positioning of the child and home exercises to maximize the child's potential for recovery
- ROM exercises to maintain joint range, prevent stiffness and pain
- Strengthening activities to promote recovery of movement and strength of functional muscles
- Bimanual or bilateral motor planning activities
- Sensory stimulation to promote increased awareness of the arm
- Provision of splints (aeroplane and hand splints) to prevent secondary complications and maximize function
- ADL activities
- Constraint induced movement therapy may be useful
- Electrical Stimulation may be beneficial

Reference:

https://en.hesperian.org/hhg/Disabled_Village_Children:Chapter_14:_Erb's_Palsy:_Arm_Paralysis_From_Birth_Injury

3. Muscular Dystrophy and Other Neuromuscular Conditions
ICF-Based Goals and Intervention (EI App)

LIMITATION	GOAL	INTERVENTION
ICF- ACTIVITIES AND PARTICIPATION **Indoor Mobility**		
Has difficulty walking indoors within the home	To walk at home independently	-Balancing activities -Gait training -Walk up and down in steps -Endurance exercise -Kicking activities -Breathing exercises
	To walk using a hand-held mobility device within home	-Counseling caregiver and child about of mobility devices -Referral to mobility aids support and services -Check size and fit -Teach maintenance of mobility aids -Gait training -Endurance training
	To walk short distances indoors	-Gait training, side walking with support -Endurance exercise -Breathing exercises
	To use a wheelchair for indoor mobility	-Counseling caregiver and child about the need of wheelchair -Refer to wheelchair support -Check the size and modifications -Transfer techniques from bed to wheelchair
	To transfer the child from one place to another with minimum strain for caregiver	-Teach lifting carrying and transfer techniques to caregiver -Training child on supported weight bearing while transferring
ICF- ACTIVITIES AND PARTICIPATION **Outdoor Mobility**		
Has difficulty walking outdoors in the community	To walk in the community independently	-Endurance exercise, breathing exercise -Gait training over different platforms

		-Balancing Activities -Walking up and down on an incline -Kicking activities in standing
	To walk in the community with a hand-held mobility device and less than 500 M	-Gait training over different platforms -Balancing activities -Walking up and down on an incline -Walking between barriers -Kicking activities in standing -Endurance exercise -Breathing exercises
	To use a wheelchair for community mobility.	-Counseling caregiver and child about the need of W/C -Referral to WC support and services -Check size, teach maintenance and maneuver of W/C to caregiver -Transfer techniques from bed/floor/chair to W/C -Teach W/C self-maneuver technique
ICF- ACTIVITIES AND PARTICIPATION **Attaining and maintaining a functional position**		
Does not attain functional position for learning and communication	To attain functional positioning and posture	-Teach importance of good posture -General spinal mobility and strengthening exercises
	To attain functional positioning with postural adaptation	-Counseling caregivers and child about the importance of good posture -Refer for suitable postural aids -Check the size, fit and posture
ICF- ACTIVITIES AND PARTICIPATION **Functional Transfers**		
Has difficulty in transferring from bed to chair/WC or floor to chair/WC	To transfer from bed to chair/WC, floor to chair/WC	-Teach transfer technique to child and support level to caregiver -Work on suitable adaptations to facilitate transfer
Has difficulty in transferring chair to WC and vice versa	To transfer from bed to chair/WC, floor to chair/WC	-Teach transfer technique to child and support level to caregiver -Work on suitable adaptations to facilitate transfer

ICF- ACTIVITIES AND PARTICIPATION **Self-Care**		
Has difficulty in using toilet independently	To use toilet independently	-Position and balance training
	To use toilet independently but slow in activities	-Position and balance training -Minimum safety adaptation at toilet
	To reach and perform big and small jobs but may need support for cleaning and transferring	-Training on indoor mobility and transfer -Work on accessibility in the toilet -Work on equipment adaptations
	To use toilet with support of caregiver with suitable home adaptations	-Training on indoor mobility and weight bearing on transfer -Work on accessibility in the toilet -Work on equipment adaptations
ICF- ACTIVITIES AND PARTICIPATION **Participation in School**		
Does not attend school	To attend school regularly	-Address parent concerns -Address peer and teacher concerns -Suitable mobility aid/human assistance if required -Advocate on school/class access and helpers
	To attend special school	-Address parent concerns -Address peer and teacher concerns -Suitable mobility aid/human assistance if required
	To attend school only few days in a week	-Address parent's concern -Address peers and teachers concern -Suitable mobility aid/human assistance if required -Advocate on school/class access and helpers

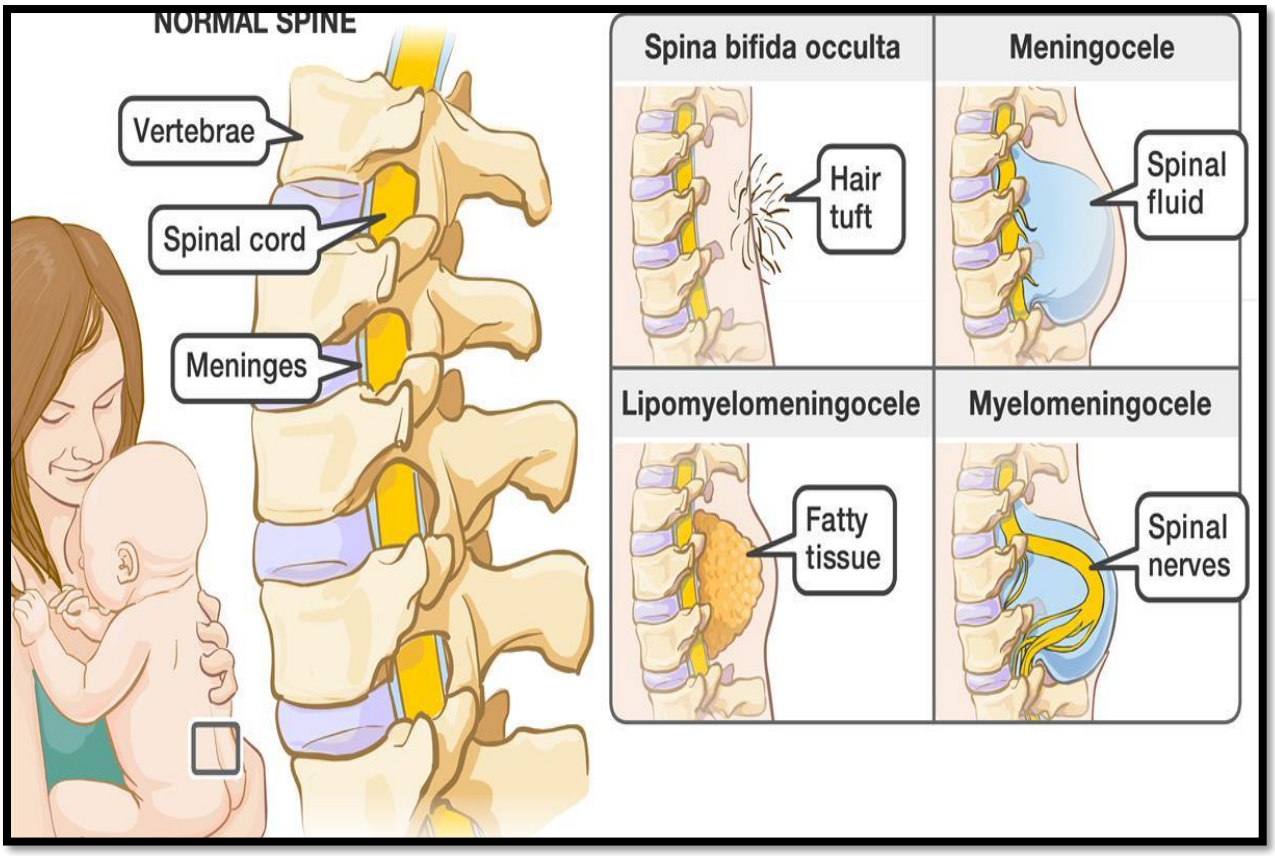
ICF- BODY STRUCTURES AND FUNCTION **Prevention of Contractures and Deformities**		
At risk to develop spinal deformity	To maintain correct spinal alignment	-Teach child and caregiver about importance and awareness of good posture -Teach spinal mobility & strengthening exercises -Adaptations in chair or wheelchair
At risk to develop lower limb deformities	To maintain good posture of lower limbs	-Teach child and caregiver about importance and awareness of good posture -Teach passive/self-stretching exercises -Teach passive/active mobility exercises -Train good posture techniques -Referral to obtain calipers.
Has a spinal deformity	Correction of spinal deformities	-Teach child and caregiver about importance and awareness of good posture -Teach spinal mobility & strengthening exercises -Adaptations in chair or wheelchair -Referral for spinal brace -Referral for surgical intervention

Reference:
https://en.hesperian.org/hhg/Disabled_Village_Children:Chapter_10:_Muscular_Dystrophy:_Gradual,_Progressive_Muscle_Loss

https://en.hesperian.org/hhg/Disabled_Village_Children:Helping_the_Child_to_Keep_Walking_for_As_Long_As_Possible

4. Spina Bifida Intervention
ICF-Based Goals and Intervention (EI App)

LIMITATION	GOAL	INTERVENTION
Spinal deformity	To maintain / improve spinal alignment	Supported positioning for alignment Bracing, postural supportive device Spinal mobility ROM Spinal muscle strengthening
Muscle weakness	To improve muscle strength	Muscle strengthening Provide orthotics
Joint ROM limitation	To improve joint ROM	Passive ROM Muscle stretching Muscle strengthening Positioning, orthotics
At risk for pressure ulcer	To prevent pressure ulcers	Periodical evaluation of skin Change position every 2 hours Avoid wet clothing, shearing forces Recommend pressure relief positions
At risk for pressure sores	To prevent pressure sores	Teach skin inspection periodically Teach pressure relieving techniques Referral to seating adaptations or modified bed
Has existing pressure sore(s)	Healing of pressure sores	Referral to hospital for wound dressing Teach pressure relieving techniques Referral for seating adaptations or modified bed
Unable to stand independently	To stand with support	Provide orthosis Provide support from environment
Unable to ambulate with support	To ambulate with support	Provide an orthotics Gait training with support from environment Prescribe a walking aid Gait training with walking aids Consider need for a W/C



Reference:

https://en.hesperian.org/hhg/Disabled_Village_Children:Chapter_22:_Spina_Bifida

https://en.hesperian.org/hhg/Disabled_Village_Children:Helping_the_Child_Develop

https://en.hesperian.org/hhg/Disabled_Village_Children:Prevention_and_Correction_of_Contractures

https://en.hesperian.org/hhg/Disabled_Village_Children:Prevention_of_Pressure_Sores_and_Injuries

5. Spinal Deformity

Reference:

https://en.hesperian.org/hhg/Disabled_Village_Children:Chapter_20:_Spinal_Curve_and_Other_Back_Deformities

https://en.hesperian.org/hhg/Disabled_Village_Children:Examining_for_Spinal_Curve

6. Torticollis

Reference: https://www.physio-pedia.com/Congenital_torticollis

7. Visual Impairment and Cortical Visual Impairment

Reference:

http://www.childrenshospital.org/conditions-and-treatments/conditions/c/cortical-visual-impairment/symptoms-and-causes

https://en.hesperian.org/hhg/Disabled_Village_Children:Chapter_30:_Blindness_and_Difficulty_Seeing

CHAPTER 9

HANDLING AND POSITIONING THE CHILD WITH MOTOR IMPAIRMENTS

Carrying the child with Motor Impairments
Optimal Handling and positioning the child in lying, sitting, standing
Positioning for Children GMFCS Levels IV-V

Proper handling and positioning of infants with neuromotor impairment

- Improves the child's interaction with the world
- Facilitates the child's gross motor skills, postural control
- Allows fine motor development, reaching in midline, self-care activities
- Encourages communication skills and language development
- Develops cognitive abilities
- Promotes social interactions, visual skills, ability to play and exploration of their body and toys.
- Facilities understanding of interrelationships among their own bodies, objects, and people

Carrying a Child in Front of Your Body

Hold the child's back against your chest with one of your arms. Bend the child's legs with your other hand, and keep the legs bent by supporting the child's thighs with your arm. Make sure the child's arms are forward.

Carrying a Child on One Hip

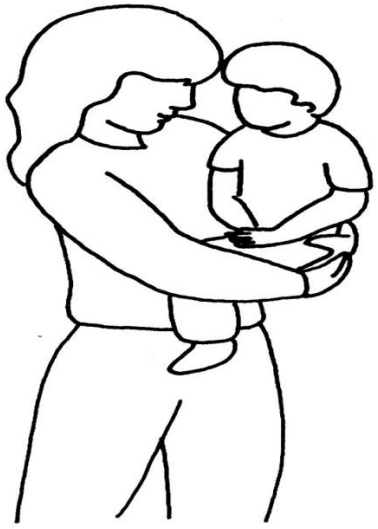
Hold the child in your arms with the child's hips and knees bent. Rest the child's bottom on one of your hips while you support the child's thighs and keep the legs bent with your arm. Use your body and arm to keep the child's back and head upright. Make sure the child's arms are forward (hands can be together or resting on the child's thighs).

Carrying a Child with Legs Separated

FIGURE A

FIGURE B

Carrying a Child with Legs Straddling One of Your Hips



Hold the child against your body, with the child's legs straddling one of your hips. Support the child's bottom and keep the legs bent with your arms. Turn the child's body so that both of the child's arms are forward, in front of your chest.

Carrying the Child with Extension Hypertonia

Type of CP	*One way of carrying small child*	*Alternate way for small child*	*Large child*
Severe spastic extended child 	 Push back is prevented by holding hips in flexion and not supporting head	 Prevents abnormal push back and facilitates postural control of head	 Flexion and abduction of hips prevents abnormal push back

Carrying the Child with Flexion Hypertonia

Severe spastic flexed child 	 Child is held in good extension and encouraged to actively lift head	 Child is held in good extension and encouraged to actively lift head	 Arms are prevented from pulling down into flexion. Head and trunk encouraged to actively extend

Carrying the Athetoid Child

Athetoid			
			
	To facilitate symmetry and postural control of head	To facilitate symmetry and postural control of head	Held in alignment for symmetry and postural control of head

Carrying the Athetoid Child with Dystonic Spasms

Athetoid with dystonic spasm			
			
	To prevent extensor spasm and encourage active extension	Hips held flexed to prevent push back	To prevent extensor spasm and encourage active extension

Carrying the Child with Hemiplegia

Type of CP	*One way of carrying small child*	*Alternate way for small child*	*Large child*
Hemiplegia 	 Hemi side facing forward helps head turning to affected side	 To inhibit retraction of hemi side	 Child walks alone but, if insecure, hold hemi hand
Floppy child 	 To give sensori-motor experience of upright position and facilitate postural control of head	 To give sensori-motor experience of upright position	 To facilitate holding head erect

Carrying the Hypotonic (floppy) Child

Positioning for Children GMFCS Levels IV-V:
focus on hip health

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INFANTS: AGES 0-2 YEARS

SUPINE

Use positioning pillows, rolls, wedges and positioning devices that hold their shape.

INFANTS IN SUPINE: Introduce early, in hospital if possible.

SUPPORTS: Laterally at the pelvis, trunk and head, and trough supports under the thighs and calfs, heels may be free or supported. **Avoid asymmetrical lying posture [2].**

HIP POSITION: Aim for **hip abduction 15-30° [3]**; hip flexion 10-40°; and hip external rotation 5-30°.

DOSAGE: Use daily as per the infant's tolerance.

SITTING

Adapt commercially available baby highchairs, strollers, and/or use positioning equipment such as floor sitters or small seats.

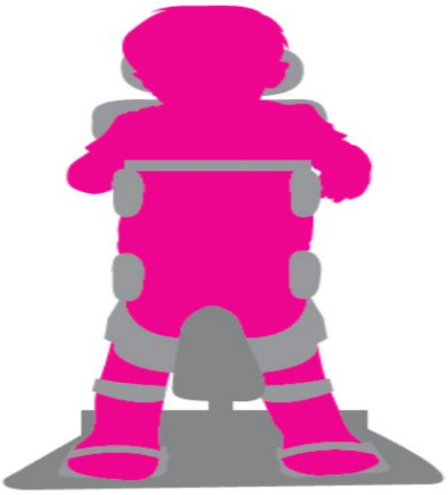
INFANTS IN SITTING: Introduce around 5 months as per the infant's tolerance. Gradually bring to more upright position to encourage head control.

SUPPORTS: Lateral at the pelvis, trunk and head. Shape pommels and/or seating system to encourage hip abduction and external rotation and aligned foot position.

HIP POSITION: Aim for **hip abduction 15-30° [3]** as tolerated and hip external rotation 5-15°.

DOSAGE: Use daily as per the infant's tolerance.

STANDING



Use a supine, prone or upright standing frame.

INFANTS IN STANDING: Introduce standing after 9-10 months of age.

SUPPORTS: Head, trunk, upper limb (via a tray), pelvic, knee (via straps above and below the knee), pommel and foot. Use tilt to provide support and encourage head control.

HIP POSITION: Aim for **15°+ of hip abduction [4]**, more if tolerated by the infant.

DOSAGE: Use daily as per the infant's tolerance.

WALKING

Use a supportive walker.

INFANTS IN WALKERS: Introduce walking to infants GMFCS IV, after 10 months of age.

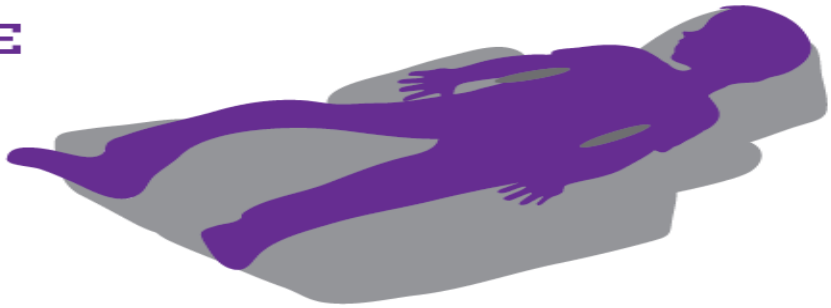
SUPPORTS: Provide support where needed from the head downwards.

HIP POSITION: Aim for active range of motion.

DOSAGE: Use daily as per the infant's tolerance.

CHILDREN: AGES 2-6 YEARS

SUPINE



Use positioning pillows, rolls, wedges, padded brackets and positioning devices that hold their shape.

SUPPORTS: Laterally at the pelvis, trunk and head, and trough supports under the thighs and calfs. Heels may be free or supported

HIP POSITION: Aim for **hip abduction 20° [3,5]** and hip flexion 0-15° and hip external rotation 5-15°.

DOSAGE: As per the child's tolerance.

SITTING

Continue with sitting equipment. Use positioning equipment such as small seats on tilt or wheeled bases. Gradually bring to more upright position to encourage head control or as head control develops.

SUPPORTS: At the head, trunk, pelvis, thighs and feet. Shape pommels and/or seating system to encourage hip abduction and external rotation and aligned foot position.

HIP POSITION: Aim for **hip abduction 15-30° [3]** as tolerated and hip external rotation 5-10°.

DOSAGE: As required for feeding, fine motor activities, interaction and mobility. **Up to 6 hours per day [2]**.

STANDING

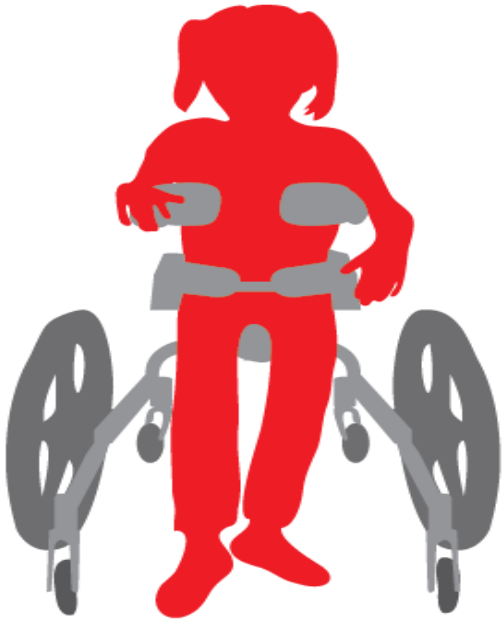
Continue with standing. Use a supine, prone or upright standing frame.

SUPPORTS: Head, trunk, upper limb (via a tray), pelvic, knee (via straps above and below the knee), pommel and foot. If needed use tilt to provide support and encourage head control.

HIP POSITION: Aim for **hip abduction 15-30° [4, 6]. Avoid 0° hip abduction [7].**

DOSAGE: Aim for **60-90 minutes per day [3, 5].**

WALKING



Use a walker that has support where the child needs it, i.e. head, trunk, pelvis, upper limbs (via a tray or forearm supports).

Continue with supported walking with children GMFCS IV. If possible introduce walking with children GMFCS V.

SUPPORTS: Provide support where needed from the head downwards, i.e. head, trunk, pelvis, upper limbs (via tray or forearm supports).

HIP POSITION: Aim for active range of motion.

DOSAGE: As per the child's tolerance.

Positioning for Children GMFCS Levels IV-V: focus on hip health

SUNNY HILL HEALTH CENTRE FOR CHILDREN
3644 Slocan Street, Vancouver, BC, V5M 3E8

Reference:

Positioning for Play: Home Activities for Parents of Young Children

Rachel B. Diamant M.S., OTR

Therapy Skill Builders, 1992

References:

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https://en.hesperian.org/hhg/Disabled_Village_Children:Different_Methods_to_Correct_Contractures

https://en.hesperian.org/hhg/Disabled_Village_Children:Chapter_18:_Hip_Problems

CHAPTER 10

ENVIRONMENTAL FACTORS: ENABLING FUNCTION, INCLUSION AND PARTICIPATION

What are environmental factors?
Identifying environmental barriers
Setting environmental goals
Environmental Interventions to enable function
Assistive Technology for Children with Disabilities

What are Environmental Factors?

- They are ***contextual factors or "outside of the person***".
- Environmental factors may be ***physical, attitudinal, and/or societal***.
- They may be ***barriers or enablers***.

An environment with barriers and without enablers restricts a child's potential; other more enabling environments increase the opportunities.

Society may hinder a child's potential because it creates barriers (for example, negative attitudes or inaccessible buildings) or it does not provide enablers (for example, unavailability of assistive technology).

Without assistive technology and accessible environments, children with disabilities may be unable to go from home to school, see what is written on the blackboard, hear and understand the teacher, read the textbooks.

What barriers do children with disabilities experience?

Children with disabilities may face extreme disparities and daunting challenges to the enjoyment of academic, social, and community participation.
They are subjected to additional *discrimination and social exclusion* based on age, gender, social status, language, ethnicity, religion, living in conflict zones and other factors. Girls with disabilities are particularly at risk of discrimination and abuse.

Children with disabilities experience different forms of exclusion, which may hinder their access to health, education and social services, and limit their participation in family, community, and society.

Environmental Barriers, Goals, and Interventions (EI App)

Barriers Identified	Goals	Interventions
Family's attitude and understanding about the disability	Family understands the medical condition, child's capacity and intervention methods	▪ Give adequate information about the condition in the suitable format for the family
Family's understanding about the child's capacity and acceptance of intervention methods	Family understands the medical condition, child's capacity and intervention methods	▪ Organize focus group discussions with peers and experts ▪ Organize counseling support for the parents if required
Family does not have members /human resource to work/train child with disability	To organize suitable person to work/train child with disability	▪ Work with families to identify persons in family, neighbours and community that can help the child regularly for training. ▪ Analyze and divide the tasks according that can be assigned community volunteers/ peers/family members for various tasks. ▪ Train the person on specific skills required to train the child
Family does not accept the use of assistive devices	Family understands the use of assistive devices and open to use for the child	▪ Give adequate information about the use of assistive devices, pictures, videos of children using. ▪ Organize peer meeting with parents of child that uses the assistive device
Resources for assistive devices are not available	To facilitate resources for assistive devices	▪ Family Contribution ▪ Government sources ▪ Donors and other sources
Poor accessibility in home, limited space and poor resources for modification	To facilitate suitable accessibility in home	▪ Work with families to find suitable adaptations ▪ Facilitating resources for the chosen adaptation
Poor accessibility in school	To facilitate suitable accessibility in school	▪ Work with school management and family to find suitable adaptations ▪ Ensure resources for the chosen adaptation through govt or other sources

Poor accessibility in other place - for participation	To facilitate suitable accessibility for participation	▪ Work with management and family to find suitable adaptations ▪ Ensure resources for the chosen adaptation through govt or other sources
Negative attitude of school staff and poor acceptance on child with disability	School staff understand right and needs of child with disability	▪ Sensitization/awareness program on rights and methods of working with the child ▪ Work with student mentors for child with disability ▪ Request petition to district collector if required
Human assistance at school or other place for participation is not available	To organize suitable human assistance wherever required	▪ Work with family, school management to identify persons in family, neighbours and community that can help the child regularly for training ▪ Train the person on specific skills required to train the child
Peers do not cooperate with the child/bullying the child	Peers understand the child's needs and cooperative in inclusion of the child	▪ Periodic sensitization/awareness program for peers ▪ Identify and train peer mentors ▪ Periodic sensitization/awareness program for parents of peer group
Public transport is not accessible for the child	To facilitate suitable mode of transportation	▪ Work with families and school to find suitable mode of transport

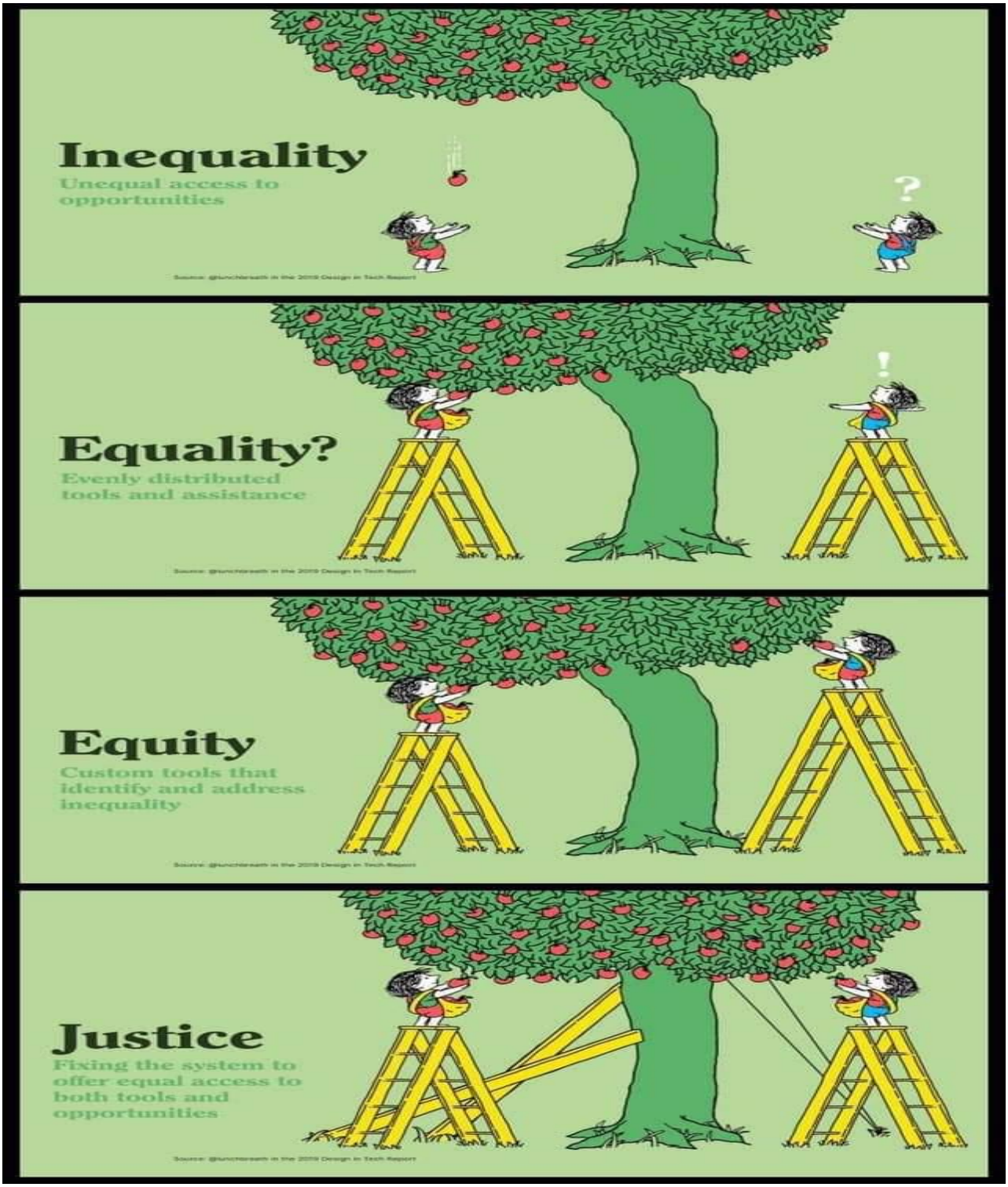
References:
Environment- Adapting the Home and Community

https://en.hesperian.org/hhg/Disabled_Village_Children:Chapter_51:_Adapting_the_Home_and_Community

https://en.hesperian.org/hhg/Disabled_Village_Children:Adapting_the_Community

https://en.hesperian.org/hhg/Disabled_Village_Children:Chapter_44:_Disabled_Children_in_the_Community

https://en.hesperian.org/hhg/Disabled_Village_Children:Meeting_the_Special_Physical_Needs_of_Children_at_School



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CHAPTER 11

MOBILITY AND SUPPORTIVE DEVICES

Assistive Technology for Children with Disabilities
Walking Aids, orthotics
Wheelchair Provision and Supportive Seating

Assistive Technology for Children with Disabilities

What is assistive technology?

Assistive technology is used as an umbrella term for both assistive products and related services. Assistive products are also known as assistive devices

The *International Classification of Functioning, Disability and Health (ICF)* defines assistive products and technology as any product, ***instrument, equipment or technology*** adapted or specially designed for improving the functioning of a person with a disability.

Assistive products also may be *any product*, especially produced or generally available, that is used by or for persons with disability: for participation; ***to protect, support, train, measure, or substitute for body functions/structures and activities*; or *to prevent impairments, activity limitations or participation restrictions*.**
This includes devices, equipment, instruments, and software.

What is Assistive Technology (AT)?

- Assistive technology includes products and related services **that improve the functioning of people with disabilities**. It can be instrumental for children's development and health, as well as for participation in various facets of life.
- These include communication, mobility, self-care, household tasks, family relationships, education, engagement in play and recreation. Assistive technology can enhance the quality of life of both children and their families.
- Assistive technology is one of the **key elements to advancing inclusion of children with disabilities** together with additional supports such as removal of barriers, personal assistance, and sign language interpreters.
- Access to assistive technology for children with disabilities is **critical for many to access and benefit from education.**
- Access to assistive technology is a precondition for achieving equal opportunities, enjoying human rights and living in dignity. Girls and boys with disabilities are entitled to available and affordable assistive technology.
- Supportive services and technology can enable children with disabilities to take their place in society and contribute to their family and community.

Assistive devices that children with disabilities might require include:

Mobility devices (e.g. walkers, crutches, wheelchairs, orthoses, and prostheses)

Communication devices (e.g. communication boards and electronic speech output devices)

Daily living devices (e.g. adapted cutlery and cups, shower seats and commodes)

Visual devices (e.g. white canes, eyeglasses, Braille systems and talking books)

Hearing devices (e.g. hearing aids)

Cognitive devices (e.g. diaries, calendars, and schedules)

Services related to Assistive Products include:

- Referral
- Assessment of the child
- Prescription
- Funding
- Ordering
- Product preparation
- Fitting/ adjusting of the product to the child
- Training of the child or family members
- Follow-up
- Maintenance and repairs
- Adapting, modifying or fitting the product

The 6 As' of Assistive Technology

- Available
- Accessible
- Affordable
- Adaptable
- Acceptable
- Appropriate quality

It is important to choose materials and manufacturing methods that as far as possible allow for local repair and maintenance at an affordable cost.

Category	Product examples
Mobility	Walking stick, crutch, walking frame, manual and powered wheelchair, tricycle Artificial leg or hand, leg or hand splint, clubfoot brace Corner chair, supportive seat, standing frame Adapted cutlery and cooking utensils, dressing stick, shower seat, toilet seat, toilet frame, feeding robot
Vision	Eyeglasses, magnifier, magnifying software for computer White cane, GPS-based navigation device Braille systems for reading and writing, screen reader for computer, talking book player, audio recorder and player Braille chess, balls that emit sound
Hearing	Headphone, hearing aid Amplified telephone, hearing loop
Communication	Communication cards with texts, communication board with letters, symbols or pictures Electronic communication device with recorded or synthetic speech
Cognition	Task lists, picture schedule and calendar, picture based instructions Timer, manual or automatic reminder, smartphone with adapted task lists, schedules, calendars and audio recorder Adapted toys and games

- Protective headgear can ensure the physical well-being of children with epilepsy and enable them to participate in activities important for social well-being.
- A pressure relief cushion in a wheelchair can protect a child with paralysis from pressure sores and associated fatal infections.
- Ramps and handle bars can help children to access health facilities, and a hearing aid can help a child with a hearing impairment to use health services.
- Parallel bars can help children with balance challenges to develop balance and strength.
- A communication board can support a child with speech difficulties to express herself.
- A screen reader can make it possible for a child who cannot see to access information on the web.
- A splint can enable a child to join the family at a cultural event.
- An alternative way of showing time can help a child with an intellectual disability to meet with friends on time.

Reference: Assistive Technology for Children with Disabilities: Creating Opportunities for Education, Inclusion and Participation-A Discussion Paper-WHO/UNICEF, 2015

Postural Aids and Adaptations

https://en.hesperian.org/hhg/Disabled_Village_Children:Chapter_62:_Developmental_Aids

https://en.hesperian.org/hhg/Disabled_Village_Children:Sitting_Aids

https://en.hesperian.org/hhg/Disabled_Village_Children:Standing_Aids

https://en.hesperian.org/hhg/Disabled_Village_Children:Aids_for_Balancing_and_Body_Control

Orthotics (Calipers)

https://www.physio-pedia.com/Orthotics_in_Cerebral_Palsy

https://en.hesperian.org/hhg/Disabled_Village_Children:Chapter_58:_Braces_(Calipers)

https://en.hesperian.org/hhg/Disabled_Village_Children:Fitting_Plastic_or_Metal_Braces

Supportive Seating and Wheelchair Provision

https://physio-pedia.com/Postural_Support_Devices

https://en.hesperian.org/hhg/Disabled_Village_Children:Chapter_64:_Decisions_About_Special_Seats_and_Wheelchairs

https://en.hesperian.org/hhg/Disabled_Village_Children:Healthy,_Comfortable,_and_Functional_Positions

https://en.hesperian.org/hhg/Disabled_Village_Children:Chapter_65:_Adaptations_for_Wheelchairs_and_Other_Sitting_Aids

https://en.hesperian.org/hhg/Disabled_Village_Children:General_Position

https://en.hesperian.org/hhg/Disabled_Village_Children:Carefully_Evaluate_What_Kinds_of_Support_Each_Child_Needs.

WHO-Wheelchair Service Provision

https://www.who.int/disabilities/technology/wheelchairpackage/en/

https://www.who.int/disabilities/technology/wheelchairpackage/wstpintermediate/en/

Assistive Devices (Physio-pedia)

https://www.physio-pedia.com/Category:Assistive_devices

https://www.physio-pedia.com/Assistive_Devices

https://www.physio-pedia.com/Assistive_Devices_for_Cerebral_Palsy

https://www.physio-pedia.com/images/2/2d/Cpt._62_Developmental_aids.pdf

https://www.physio-pedia.com/images/8/81/Cpt._64_Decisions_about_special_seats_and_wheelchairs.pdf

https://www.physio-pedia.com/images/3/33/Cpt._65_Adaption_of_wheelchairs_and_other_sitting_aids.pdf

APPENDIX

ADDITIONAL PEDIATRIC RESOURCES

Hesperian Health Guides- Digital Edition

Disabled Village Children- A guide for community health workers, rehabilitation workers, and families

https://en.hesperian.org/hhg/Disabled_Village_Children

The Hambisela Project

https://www.physiospot.com/physiopedia/the-hambisela-project/

https://www.cerebralpalsy.org.za/for-parents-and-caregivers

The HELP Guide to Cerebral Palsy (Electronic version)

https://storage.googleapis.com/global-help-publications/books/help_cphelp.pdf

WHO

Promoting the development of young children with cerebral palsy: a guide for mid-level rehabilitation workers

https://apps.who.int/iris/handle/10665/62696

World CP Day

https://worldcpday.org/

CanChild Centre for Childhood Disability Research

https://www.canchild.ca/

GMFCS-E&R (Gross Motor Function Classification System -Expanded and Revised) Included video, Family Report Questionnaire, Descriptors and Illustrations

https://www.canchild.ca/en/resources/42-gmfcs-e-r

Check out "GMFCS Video" from CanChild on Vimeo

https://vimeo.com/293380093

The ICF for Parents
https://canchild.ca/en/the-icf-for-parents-p-icf

The F-Words Knowledge Hub
https://www.canchild.ca/en/research-in-practice/f-words-in-childhood-disability

Check out "My Favourite Words" from CP-NET on Vimeo.
https://vimeo.com/252166407

Participation Knowledge Hub
https://www.canchild.ca/en/research-in-practice/participation-knowledge-hub

Research summary: Changing the task or changing the environment = Changing the Child
https://www.canchild.ca/en/resources/104-research-summary-changing-the-task-or-changing-the-environment-changing-the-child

The Impact of Environmental Setting on the Mobility of Children with Cerebral Palsy: Research Findings and Clinical Implications

https://www.canchild.ca/en/resources/178-the-impact-of-environmental-setting-on-the-mobility-of-children-with-cerebral-palsy-research-findings-and-clinical-implications

Autism Classification System of Functioning: Social Communication (ACSF:SC)
https://www.canchild.ca/en/resources/254-autism-classification-system-of-functioning-social-communication-acsf-sc

Childhood Disability Link- Canada
https://www.childhooddisability.ca/
https://www.childhooddisability.ca/diagnosis/cerebral-palsy/

Physio-pedia
https://www.physio-pedia.com/home/

Academy of Pediatric Physical Therapy Fact Sheets and Resources
https://pediatricapta.org/fact-sheets/
http://www.pencru.org/projectsmeetings/researchprojects/

Outcome Measures
https://pediatricapta.org/includes/fact-sheets/pdfs/13%20Assessment&screening%20tools.pdf?v=1.1
http://therapybc.ca/wp-content/uploads/2018/04/Outcome-Measure-Primer.pdf

Early Childhood
https://www2.gov.bc.ca/assets/gov/health/managing-your-health/early-childhood-health/ei_therapy_guidelines.pdf

BOOKS:

1. Disabled Village Children – A guide for community health workers, rehabilitation workers, and families, David Werner, The Hesperian Foundation, Berkeley (1999).
2. Promoting the Development of Young Children with Cerebral Palsy – A guide for mid-level rehabilitation workers, World Health Organisation, Geneva (1993).
3. Let's Communicate – A handbook for people working with children with communication difficulties, World Health Organisation, Geneva (1997).
4. Community Based Rehabilitation -- Training and Guide, World Health Organisation, Geneva (1989).
5. The Education of Mid-Level Rehabilitation Workers, World Health Organisation, Geneva (1992).
6. Disability Prevention and Rehabilitation in Primary Health Care – A guide for district health and rehabilitation managers, World Health Organisation, Geneva (1995).
7. Disability Prevention and Rehabilitation – A guide for strengthening the basic nursing curriculum, World Health Organisation, Geneva (1996)

VILLAGE-BASED EARLY
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